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GROUP

VOLUME 4 NUMBER 6

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DATA STATEMENTS

Smooth Operator

If you've ever experienced a computer reset caused by a surge in the mains supply then an investment in a power filter such as Warwick Products' Supa 7 could prove worthwhile.

Rated at 7 amps - more than enough for most computer systems - the Supa 7 serves two useful purposes. First it smooths out any voltage spikes caused by light switches or by electric motors in heating systems, refrigerators or deep freezers. Secondly the unit filters out radio frequency interference (RFI) which can emanate from many sources.

Including VAT, the price is £14.95 plus 50p postage and packing.

Touchline:

Warwick Products 30 March Way, Four Oaks Road, London E14 9EX. Tel: 07-539 2335.



The Supa 7 Power Filter

Little Brother

A new low-cost printer launched by Brother recently promises a print speed of 160 cps. The compact Brother 1299 has a dual interface and three resident fonts: Pica, Gothic and Quadra.

Priced at £265, the 1299 has Epson and IBM compatibility for both sheet and tractor feed paper.

Touchline:

Brother Computer Peripherals Division, Japan Brother, Shuply Street, Guide Bridge, Andover, Hampshire SP4 3AB. Tel: 047-329 6531.

N-o-o-o-Cascade

Billed as the 'ultimate simulation of true warfare', Cascade have released the first part of the 15 wargame duet based on the movie by Paul Verhoeven.

19 part 1 - Boot Camp is the training ground for the new 18-year-old recruit stars in the game. Boot Camp contains detailed graphic images and arcade action as the recruit progresses through basic training on a playing area (war zone) which is included in the package as a full-colour map.

On completion of basic training you'll have to wait until the second part, 10 part 2 - Vietnam, is released later this year.

Boot Camp is available on C64 cassette for £9.95 or £14.95 on disk.

Touchline:

Cascade Games 1-3 Mayno Court, Barrapark, North Yorkshire YO1 1BB. Tel: (0423) 525123. **Amaphone** (0423) 504663.



John Davis and Nigel Hughes made arrangements about basic training on the Touchline Movies

Re-Inkarnation

Tired, old printer ribbons can be given a new lease of life with MGA Microsystems' Madlaker unit.

Whether the ribbon is made of felt, silk, cotton or nylon, the Madlaker unit will evenly re-ink it via a unique capillary mesh. The manufacturer claims that the use of this unit can extend the life of a ribbon by as much as 40 times for only a few pence each time it is recharged.

Actual prices for any cartridge or unit system can be supplied on application to MGA, but typical costs range from £90 to £98 inclusive of VAT and postage.

MGA also market Supra Corporation's 64K buffer for Centronics printers. Known as the Microbuffer, this unit has the added benefit of being able to reprint the buffer contents at the touch of a button.

The MicroBuffer comes complete with a Centronics input socket and output lead for £59.99 plus VAT.

Touchline:

MGA Microsystems Four Tree, Appleton, Kent TN39 2AR. Tel: 033 43371.

Star Turn

The NL-10 is dead, long live the LC-10! At the recent Which Computer? Show, Star Micros announced the launch of a new low-cost printer with a higher specification but at a lower cost than the NL-10 that it replaces.

The new multifont LC-10 offers printing speeds of 120 characters per second in draft mode and an NLQ speed of 30 cps, six resident fonts and seven print pitches selectable from a comprehensive front panel.

Another desirable feature which has been included on the new machine is a push feed tractor mechanism which means that paper wastage is kept to a minimum especially when using short form, tear-off sheets such as address labels.

An automatic paper parking capability removes the need to remove and replace tractor fed paper before and after loading in single sheets for those important one-off missions.

The retail price of the LC-10 is £229 including VAT.

Touchline:

Star Micros 22, Cross House, 49 Unbridge Road, Ealing, London W3 2BS. Tel: 07-448 1883.

DATA STATEMENTS

Budget Booster

Following the recent tie-up between Mastertronic and Activision, the limited deal for Activision's back catalogues has been increased to include all the present and future products on the Activision label. The first batch, released in January included *Exobots*, *Ball Blazer* and the smash hit of several years ago, *Ghostbusters*.

Read Comments of Activision commented, "In a business where shelf life may be short lived, the ability to recycle through budget labels is beneficial to all concerned. We are pleased to forge this association with Mastertronic and look forward to an on-going, successful relationship."

In a reciprocal burst of mutual back-slapping, a spokesperson at Mastertronic responded, "We are

delighted with this deal with Red, the Activision range reinforces our policy of only releasing the very best quality products on the Bloobert label."

The Activision/Bloobert titles will be released at £1.99 and £2.99 for all-bit machines and £9.99 for 16-bit versions. The deal is important for the image of Mastertronic which is suffering a little under the new Gallup poll sampling system. Despite extremely powerful sheets of "humbag" from Mastertronic, Code Masters are still claiming to have ousted them from the top slot in budget software sales.

Touchline:

Mastertronic 8-18 Paul Street, London EC2. Tel: 01-377 0886.

Activision 21 Paul Street, Hammersmith, London W6 7J 2PH. Tel: 01-431 1701.

A Change of Place

September sees a change of venue for the PCW Show from Olympia to the larger main hall of Earl's Court.

"The Show has outgrown Olympia both in terms of floor space and the increased number of visitors that it now attracts," and PCW Show manager Mike Blackman. He then explained, "It is a move that we have wanted to make for some time and the increased demand for space in 1988 means that the move has to be made now."

The move enables Montfield, the Show's organisers, to divide the exhibition into three sections instead of the usual two. The Business and Leisure areas will still continue but the third area can now be developed to

appeal to serious home computer and small business users.

Each section will have its own separate entrance which should relieve the businessmen who had to queue for extended periods during last year's Show. The extra space inside each hall will also allow the companies to indulge in more ambitious displays than previously permitted at Olympia.

This year's Show is scheduled for 14-18 September and the new venue is also more easily accessible to what promises to be yet another record-breaking crowd of computer users.

Touchline:

MPA Ltd 8-18 Hallow Street, London W1W 5LP. Tel: 01-638 3765.

Alternative Entertainment



In the right vein? Roger Bailey giggles

Alternative, reputedly the fastest growing software house, has cast a wider net to travel in the rights to products from Pinball, Audioquest, Incentive and Bubble Box.

In less than a year Alternative has cleared 50 times and/or one heady period during the last PCW Show, it held the top slot in the CIB, Amstrad, Spectrum and, consequently, the overall charts.

Roger Bailey, Alternative's Managing Director, boasts, "I don't think the public could ask for better value. I can see no reason why products such as *Trap Door* or *Papers* at £1.99 should not dominate the charts for months to come."

Also on the Alternative menu are *Moon Cresta* from Incentive and *Audioquest's* *Peyotaria*.

Touchline:

Alternative Software Units 1-8 Ballymore Lane, Pinner, West Yorkshire W5 8JN. Tel: 0877 787777.

Hewson's Telecommail

Following an injunction and subsequent court case in which Telecommail and Hewson contested publishing rights for *Morphus* and *Magnetron*, it was decided for the moment that Telecommail could go ahead and release the titles on their Finland label.

For those who may not have heard the story, the two games, programmed by Graffgold, were originally planned for release by Hewson and the machinery was already in motion for the promotion of the programme at last

September's PCW Show. On the eve of the show, Andrew Hewson was horrified to learn that Steve Turner, Graffgold's boss and author of *Magnetron*, had signed a programming contract with Telecommail for all future Graffgold products and separate contracts for *Magnetron* and Andrew Braybrook's *Morphus*.

In a single blow Hewson was not only screwed from what he imagined would be his two Christmas hits but also from his greatest asset, Andrew Braybrook - author of *Paradroid* and

Uridium.

Prior to the announcement, it was whispered that Turner and Braybrook were searching for a new publisher and it was also rumoured that they had already been flirting with Electronic Arts.

Although Telecommail have been given the go-ahead to publish, the Hewson versus Telecommail dispute will not reach a conclusion for several months and Andrew Hewson will not cease the fight until the bitter end.

DATA STATEMENTS

Mini Office Moneyplanner

It's not often that a software package gets a heavy plug on television, the last software package that received heavy promotion on the bantam goldfish bowl was Rainbow's Starfinder on Citi Fresh. For a business package to receive a mention in an even more obscure magazine but this is the accolade which Mini Office II has received.

Channel 4's consumer finance show, Moneyplanner, selected the Mini Office II suite of programs as the

best of four home computer finance packages.

The challenge came from Supervale's Money Manager and Planit - a second product from Database, the manufacturers of Mini Office II. Each program was judged on three main criteria: value for money, ease of use and ability to tackle the jobs in hand successfully. On all counts Mini Office II scored maximum points and, according to Moneyplanner's

producer, Belinda Giles, "would be most suitable for our viewers attempting to produce accounts on their home computer." Mini Office II is available for the C64 and in an expanded form for the C128 for £14.95.

Joining

Database Software Europe House,
Addington Park, Addington,
Maidenhead SL6 6AP. Tel: 0625
876888.

Stran Poll

If anyone can find a Commodore 64 program disk that can't be loaded from the latest version of the Excelsior Plus disk drive, Excelsior Micro's managing director, Richard Austin, will supply a free Amiga 500. In his own words he expresses his confidence in the Excelsior's compatibility by saying, "I've have to give away more than two I will not say but".

The competition has been arranged through Excelsior's PR representatives, Solution Public Relations, because Excelsior Micro is keen to ensure that the Excelsior is compatible with all Commodore 64 software designed to load from the 1541C disk drive. This would further enhance the growing reputation of the streamlined Excelsior which retails at £199.95, that's £40 cheaper than the Commodore drive.

Relating to the competition, Richard Austin commented, "We have tried to make the Excelsior as efficient as possible but we cannot test every computer game because there are too many of them. Who better than the public to attempt this task for us?"

"Despite the scale of this competition, I doubt whether we'll have to give away many Amigas."

All entrants have to do is to get a postcard and write down the name of any Commodore 64 game obtained from a computer shop which is compatible with the 1541C but not with the latest Excelsior Plus. The first entry received for each different program will win an Amiga. Postcards should be sent to Excelsior Micro, c/o Solution Public Relations, Carlton House, 18-12 Marlborough Place, Brighton BN1 1JN. The closing date is 1st March, 1988.



Excelsior Micro's Richard Austin prepares to enjoy a sugar die

Joining:
For the competition
Solution PR: Carlton House 18-12
Marlborough Place, Brighton BN1 1JN.

Product enquiries:
Excelsior Micro: 67 Bridge Street,
Exmouth, Devon EX8 1JF. Tel: 0392
763506.

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Programming

If you've got a brilliant idea for a game, but you're not too sure how to go about it, this article will provide the tips and advice that will put you on the right road

By Tony Hetherington

Have you ever looked at a game or read a review and thought that you could write a chart-topping game? If so, then why not give it a go. The worst thing that could happen is that you're left with a game that's simply enjoyed by your friends or you could become the first software millionaire!

Before we start it is important to remember that not everyone has your outlook on games and the market, so if you hit a brick wall, back off and try elsewhere. This can be a frustrating business that doesn't add to your problems by engaging in arguments fueled by devoted egos.

So you want to write a game? The first thing you have to do is find answers to the following important questions.

■ *What type of game is it going to be?*

Is it going to be an adventure, an arcade game, a sports simulation or a war or strategy game? It is an important choice since arcade games sell considerably more than others.

■ *Is it original?*

If it isn't then forget it, as no one is going to consider the first version of

Guardian, Space Invaders or Marble Madness. You can only con some of the people some of the time and you're unlikely to get away with a rip-off game. After all how would you feel if someone stole your idea?

■ *What computer will it run on?*

The C64 still has the biggest market and so a game for this machine should sell well. However, you should also think whether the game can be converted to other home machines; does it need the extra capacity offered by disk or can it be updated to become one of the growing band of Amiga games. Whatever machine you choose you should try and push it to its limits.

■ *Is this game your best idea?*

It's surprising how often a programmer gets stuck in a project and chokes other ideas until they're finished what they're working on. Sometimes the best idea never sees the light of day.

■ *Is the computer necessary?*

An odd question but an important one when you consider the number of

games of the book, film and board game that are appearing on the shelves. If the computer version is actually harder to play then it's unlikely to be accepted.

■ *Will the game have lasting appeal?*

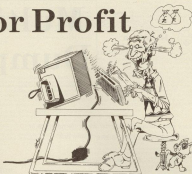
It takes almost six months for a game to reach the shops so don't make it too topical as it will be out of date by the time it's released. For example, at the time of writing this the news is full of storms, floods and stock market crashes but by the time you read this...

Once you've pondered these pertinent points you should have a working idea. If you haven't, then don't despair as software houses are always on the look out for programmers for conversion work or to team up with a game-designer who can't program. The best way to approach them is to show them what you can do either through demo programs or your version of a coin-op game.

Writing the Game

When you write the game use a well-known development toolkit or

for Profit



assembler as well as commercial sprite editors and graphic packages as this will make life easier.

Include as much animation and graphic detail in your game as you can possibly cram in as this will not only grab the eye of the software manager but also the buyers and reviewers. For example, the most memorable part of *Odin's Heartland* is the way the skeletons crumble when they're shot.

Leave room for a sound track or sound effect if you can't do them yourself, but ensure they can be turned off as many players have their games going late into the night.

Include features such as high score tables, load and save game options and joystick and user definable keyboard options to make your game as playable as possible. If you've got room, include a demo routine or short on-screen instructions so players can load and go.

Write your program using clear structured routines and keep them well documented. It may sound like hard work but it will actually make things a lot easier particularly when your debugging or make changes. Software houses nearly always want changes.

When you've finished coding, test and debug it and ensure that you

actually like playing it. If you don't then nobody else will. When you think you have the best version save it several times, try it on your friends and then submit it to a software house.

Submitting Games

It is important to ensure that you include all the relevant information including details of the machine requirements, a short description of the game describing why it's different and hints or saved game positions so that the software evaluator can see as much as possible, as quickly as possible.

This is all part of making it easy for the software house to say, yes!

If you haven't finished the game then send at least a demo routine or some sample graphics as it's very difficult to get an idea across to a buy man only on paper.

Send the game to the software house that's right for your type of game. For example you'll probably be wasting your time sending an adventure to Elite or a shoot-em-up to Level 9.

Finally, don't give up. It is unlikely that your first effort will be accepted on the first attempt so take

constructive criticism and learn from your mistakes.

How much can you earn?

The papers were once full of the thousands that young programmers were making and I'm afraid these accounts are largely exaggerated. However, if a game is accepted and sells well on more than one format it could bring in a tidy sum. Therefore you should be careful about what deal you accept. Some software houses offer a fixed sum while others have a royalty payment paid for each game sold. You're probably better off with a royalty deal since it also shows confidence in your own game. Either way ask for an advance and a contract and check the small print.

There is no real need to involve lawyers and secrecy clauses to protect your work since I find that sending a copy of the program to yourself by recorded delivery is proof enough.

If you think this is all too much then why not start the ball rolling and send off a program to *Your Commodore*. If it's accepted you'll receive a cheque for your program and you'll be well on your way to programming for profit!



What a
Dump!

Multi Dump

*Teach your Commodore to print across the full width of
the paper on your Epson or Canon printer*

By David Wilkinson

With this handy utility, high resolution and character screens can be dumped at full or half paper width by simply pressing a function key. A user friendly BASIC program is provided to simplify the setting up of the machine language program. Screen location addresses can be given in decimal or hex and you can also dump screens which use special character sets. Any printer which uses the Epson set of control codes can be used when connected to the user port on the C64.

The Epson F500, the Epson LX80, the Canon F50-1000A or the Raga Tazari printers will all work correctly with Multi Dump. You will need a cable with a plug for the C64 user port on one end and a Centronics printer plug on the other end. These can be bought made up for about £13, or you can make up your own as described in the October 1987 issue of *Your Commodore*.

Typing in Multi Dump

The machine code program which does the work is given in program 1 as a self-checking BASIC program. Type

this in and save it before you run it. Once you have it safe, type RUN. The chances are that you will have made a typing error, and if so the program will tell you which line the error is on. Correct the error and RUN it again. When there are no more errors you should save the program again.

You can now test Multi Dump by typing 9992000 and then pressing function key 0. Provided your printer is switched on and connected correctly you should get a half page-width dump of your screen on the printer. If you have additional blank lines on your printout don't worry, this can be corrected by using program 2, which is the BASIC set-up program for Multi Dump.

Using the Set-Up Program

Press RUN/RESTORE to switch off Multi Dump and type NEW (I hope you remembered to save your corrected program). Now type in program 2 and save it. Notice the gaps in the line numbers, these gaps are for lines which will be added later. A dump of the first page of the set-up

program is shown in Figure 1. As you can see, the set-up program asks questions which must be answered with Y for yes, or N for no. Answering Y for each question will ensure the default values to the Multi Dump machine code. If you answer N to any of the first three questions, you will then be asked for the location addresses of the screen or character set you want to use.

These can be given as decimal values, or, if provided by the dollar sign, as hexadecimal values, e.g. the program will accept either 37344 or 9000 as equally correct lines at input.

You can decide where on the page you want to position the small screen dump. Typing in zero puts the picture on the left half of the page, while 48 puts the picture on the right half.

If your printout has narrow black bands across the page, answer N to the narrow line find question. This will increase the line feed from 13/216 inches to 24/216 inches and should correct the problem. If your printout has white bands between each printed

Continued on page 16

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128 HELPER.

The 128 Helper is the first electronic reference manual for the 128. Let's say you are in the middle of writing a program in Basic when you realize that you need more information on a specific command, just touch the help key, almost instantly a menu appears with all Basic commands, select the command in question and a screen of detailed information appears, at the press of a key you return to your Basic program. The most useful feature of the 128 Helper is the program is user definable. The program will guide you to create your own custom screen list. This program will only cost you £24.95

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line, this is because the printer is set to produce an automatic line feed for each carriage return. To eliminate this, answer N to the first line question.

The machine code for Multi Dump is tucked away at the top of the spare memory block - from 52645 (BC1DA5) to 53247 (BC1FFF). This means that it can stay there without interference from BASIC programs and is safe even from many machine language programs which are stored at 40132 (BC000).

Once you have installed Multi Dump, you can load your own BASIC or Machine language program, use it to draw a picture, or create a screen from CIM characters and then press the appropriate function key to get a hard copy. (This will work only if your program does not overwrite Multi Dump, or change the interrupt vector.)

Figure 1

```

      PRINTS CHARACTERS & CHAR SCREENS
      ON CANON & EPSON PRINTERS
      USING PARALLEL I/O IN USER PORT
      COPYRIGHT D.O.WILKINSON OCT 1987

```

```

HIRE SCREEN ADDR=0192412000) OK? Y/N M
GIVE NEW ADDRESS = 54000

CHAR SCREEN ADDR=1824C30400) OK? Y/N Y
STANDARD CHAR. SET OK? Y/N Y
SPACES BEFORE START OF SMALL
PICTURE = 20 OK? Y/N N
GIVE NO. OF SPACES (0-40) 0
HORIZONTAL LINE FEED OK? Y/N Y
LINE FEED REQUIRED? Y/N

```

Figure 2

Simplifying Multi Dump

You can load and run programs 1 and 2 each time you want to use Multi Dump, but it is much more convenient to store the machine code as a program and load this automatically every time you run the set-up program.

To do this you need to modify the set-up program by loading it and adding the following lines:

```

30 A=ASCIFA:GOTO30
180 IFA:GOTO130
110 IFPEEK(52644)=21AND
PEEK(52645)=1GOTO130
and for tape users:
120 LOAD "MULTIDUMP.C"
or for disk users:
120 LOAD "MULTIDUMP.C",A

```

Save the modified set-up program under a new name and then load and run program 1. The machine code for this program is now in memory and can be saved by typing in the following commands directly:

```

POKE45,160:POKE44,200
POKE45,0:POKE48,200
then for tape users:
SAVE "MULTIDUMP.C"
or for disk users:
SAVE "MULTIDUMP.C",A

```

Your machine code program will then be saved from memory. This procedure alters the memory pointers and to restore them to the usual values you must switch the computer off and then on again. For tape users it is important that the machine code program is stored immediately

following the modified set-up program.

Printing your Character Screen

Press key (5) or (7) and Multi Dump will give you an exact copy of your screen as you see it. This means that you can use all the graphic characters, or the lower case character set and they will all be faithfully reproduced. The default character screen is the normal text screen which starts at 1024 (30400) but the BASIC set-up program allows you to change this to any memory block you want. If you wish, you can also use Multi Dump with special character sets.

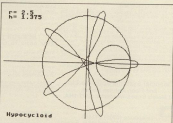
Printing your High Resolution Screen

Pressing key (1) or (2) will result in the high-res screen being dumped to the printer. The high-res screen is stored at a different memory location to the normal text screen. Multi Dump uses as a default the memory block at 8192 (20000) which is used by many drawing programs.

However, the BASIC set-up program allows you to alter this to any block you wish. The drawing shown in Figure 2 was drawn using Basic Lightning, which stores its high-res screen under the keyword at 57344 (DC000).

You can retrieve the high-res screen data from any memory block, but if you store your screen in the block starting at 40132 (BC000) it will overwrite Multi Dump!

See listing on page 102



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Label Linker

Learn the secret of labelling for BASIC programs which allows easy appending of separate modules

By David Kelsey

Although BASIC 7.0 provides many excellent commands to allow structured programming, it leaves a little to be desired on the statements which provide line numbers. It is always a nuisance to have to guess the line number that you want.

Suppose you want to jump to a subroutine, which you haven't coded yet: you must guess the line number that you think you might start coding at. Almost always, this is not the case.

It would be so much easier to type `GOSUB "CLEAR SCREEN"`, then later define the "CLEAR SCREEN" label to denote that the following code is where this `GOSUB` is pointing to.

Another useful feature would be if this subroutine wasn't actually in the main program, but was the name of another subroutine which was stored on disk or tape.

This would provide the user with the ability to call subroutines which had been previously written and tested without having to retype them in.

This would then allow libraries to be built, and if you update one of the library modules, all programs using it will be modified without having to alter all programs. All you have to do is relink them.

All this provides more facilities to do structured programming and to encourage better programming techniques.



Defining Labels

As already described, we use labels instead of line numbers for statements such as `GOSUB`, `GOTO`, `TRAP`,

`RESTORE` etc. This is done by just replacing the line number with text. The text must be enclosed by inverted commas, e.g. `GOSUB "TEST PRINT"`.

We also need a way to define which line numbers refer to labels, and this is done by using the `RUN` statement. The following example shows how to define a label:

```
REM "CLEAR SCREEN"
```

The text within the inverted commas is the label, and the `R` signals the program that this text is a label.

There are restrictions put on labels, and the first of these is a label cannot be greater than 16 characters. Also you must define a label as you cannot just `GOSUB` it.

Linking

You can just have one program which uses labels referencing lines in other places within the same program, but the Label-Linker allows much more than that.

It provides the facility to join several separately saved programs and create one large BASIC program. Not only that, but you can reference a label from one program which has been defined in a totally separate program. This means however that you cannot use the same label name in two different program modules that you

want to join, as the Label-Linker will not know which one you are referring to. This process of joining is called LINKING.

The separate programs that are to be linked together need not necessarily be complete programs, but could just be small subroutines or even just blocks of DATA statements. These programs are called MODULES.

The Label-Linker will require the names of the modules that you wish to link, and the order that you give them, will define the order of the final BASIC program.

There is one extra facility that the Label-Linker provides. If you have defined a subroutine, and saved it, instead of having to give the subroutine a label at the beginning of the routine, you can just reference this routine by using the name you have saved it under as the label name. For example, if the routine was saved under the name "CLEAR SCREEN", then all you have to do to call this routine would be to

```
GOSUB "CLEAR SCREEN"
```

Now "REM 5" line is needed in the routine.

"CLEAR SCREEN" is treated as a label, and so must be unique. An error would result if you have a line "REM 5 'CLEAR SCREEN'" in any of the program modules as well as a program name.

While coding a program using labels, it is still possible to remember the program, but obviously any statements with a label will remain unchanged.

Below is a listing of this type of use. It has three separate modules which are described under their own headers.

"MAIN"

```
10 DIM A$(20)
20 RESTORE "SCREEN
   DATA"
30 FOR LI= 0 TO 30
40 FOR LN=0 to 15
50 READ A$(LI,LN)
60 NEXT LN
70 NEXT LI
80 GOSUB "CLEAR SCREEN"
90 GOSUB "PRINTER INIT"
100 GOSUB "CALCULATE"
110
115
3140 REM "CALCULATE"
3150
3200 RETURN
3200
```

"SCREEN DATA"

```
10 DATA 192,193,135,etc
20 DATA etc
30 DATA etc
```

"PRINTER CONTROL"

```
30
30
30
40 GOSUB "CALCULATE"
50
60
100 REM "PRINTER INIT"
110 OPEN#4,2
120 PRINT #4
130 RETURN
140 REM "PAGE ADVANCE"
150 SYS=CHR$(147)
160 GOSUB "PRINT SYS"
170 RETURN
```

"PRINT SYS"

```
10 PRINT # 4:SYS
20 PRINT#4
30 RETURN
```

Note that you can link program modules or just data modules. There is a danger with data statements. If you include a module which reads its own data statements, and you have another module which reads data statements, then there is the possibility that the modules could start reading from the wrong position or the wrong set of data statements. To deal with this situation, the RESTORE statement can be used to inform BASIC where to start reading from. The RESTORE statement also works with labels as shown in the above example.

Using the Label Linker

Type in the program "DATA-LOADER", and save it under that name. Then type in the program "ROOT-LOADER" and save it. Type RUN "ROOT-LOADER". The loader will generate the required program, and save it to disk under the name "LABEL LINKER". To then execute the label linker type... 'BLOAD "LABEL LINKER", B1BANK:1: SYSTEM'

The Label Linker requires certain information. This will be prompted to you.

The prompts are:

"Start address (1000)?"

This allows control of where the final BASIC program will be stored in memory. The practical use of this is to

allow code programs to be stored in the lower half of memory, with the BASIC program above it. Then your BASIC program can call these machine code routines. It also lets the user use memory not usually reserved for BASIC (e.g. the section at \$1000).

The default is the usual start of BASIC test "1001". Once you have saved the program, and reset the computer, if you use the BLOAD command, then the program will be reloaded at wherever the BASIC start is, not at the address you may have linked it to. This won't affect the actual BASIC program, but it won't be in the part of memory you want it. To get over this, you can either reenter the start of BASIC using the LOADER program given, and load using BLOAD as usual, or you combine the BLOAD command, which will place it in the area in memory that you specified when running the Label-Linker. However, because BASIC hasn't been told where this program starts, it will either not recognize that it is there, or you will just get rubbish displayed when you try and LIST it.

'Display link map on screen or print it?'

At the end of the linking, a link map is produced (this is explained later). This tells the system whether you want to output the map to the printer or screen.

If nothing is entered or an unrecognizable character is entered then the output is defaulted to the screen. From here, all that is required are the modules to be linked. The first prompt is:

"ENTER MAIN MODULE NAME >"

This asks for the main program controls and the use of the external subroutines.

The prompts are as follows:

"ENTER MODULE NAME >"

This asks for the names of the programs containing the subroutines. Just pressing enter on any of these prompts will start the Label-Linker processing, producing the final 'object' program.

Both the names for "MAIN MODULE" and "MODULE" names are the same. If you just enter the filename, then it will try to load from disk, device 8. However the medium where the modules come from can be varied. A prefix can be given in the form of "p:filename", where 'p' is the device where the module comes from, and 'filename' is the name of the module to be included.

The following table gives the possible options for devices:

P	Device Number
a	disk device 1
b	disk device 2
c	disk device 10
d	disk device 11
t	tape device 1

It is possible to add devices onto this, and define your own prefixes, for example a virtual (RAM DISK) disk at device address 12 could be given a prefix of 'N'. This is described in the expansion section.

Note that whatever order you give the program names, they will have the same order in the final compiled program.

Where the Label-Linker replaces labels with line numbers, it doesn't necessarily replace it with the line number that the label is defined on. It replaces it with the first non-REM line number after the label, for example:

```
100 GOSUB "TEST PORT" : —
This line is replaced by:
GOSUB 1000
1000 REM "TEST PORT"
1010 REM THIS SECTION OF THE
1020 REM PROGRAM TESTS TO
SEE
1030 REM IF A PORT SIGNAL HAS
1040 REM BEEN CHANGED.
1050 PP=PEEK(INC("IDIR"))
```

Link Map

This just gives some general information about what has been done. In the above coded program, the following link map would be produced:

Label Name	Type	Line No.
main	start	----
screen data	start	----
printer control	start	----
print off	start	----
calculator	start	----
printer test	start	----
page advance	start	----

The '----' just refers to the fact that a line number will be displayed. It doesn't matter for this example what they are.

The line numbers say what line number this label is replacing, not where the label definition can be found. Remember that when linking, the Label-Linker locates the first 'non-REM' line after the label definition.

Messages

The Label-Linker has a lot of error checking, and will display any relevant error messages. These are as follows:

Device 'x' not present - this means that a device which has been assigned the prefix 'x' (a being just an example) is not communicating with the computer.

File 'example' on device 'x' does not exist - the file name example could not be loaded as the file couldn't be found. Or no disk is in device 'x'.

'x' has illegal device number - a prefix has been defined with a device number which isn't in input medium, e.g. you might have selected the device number for the screen. It isn't possible to load from the screen.

no memory left to load 'example' - all memory has been used up; cannot load this module, so any other modules after it. You can either reduce the size of the program, or the BASIC start address.

unknown error on loading 'example' - the file 'example' could not be loaded due to some kind of error, not listed above.

line no. '1111' in module 'example' contains unresolvable reference - the module 'example' could not be reassembled because the line '1111' has a statement which refers to a line number which doesn't exist in the module.

over 49999 lines in complete program, unable to continue - while joining the modules together, the number of lines so far exceeds the maximum possible in BASIC. Lines would have to be concatenated to reduce the number of lines in a module. (I would be very surprised if someone made this error.)

unable to update following line, too long - the line listed below cannot be updated because when the labels are replaced by line numbers, the line is too long to cope with. Another way this error could occur is if you have entered a line using the shorthand method, which allows longer lines to be entered. If this error does occur, then the offending line will have to be split into two separate lines. Also note that the line has been reassembled.

unable to update lines due to lack of memory - while trying to replace labels with line numbers, all of memory is

used up. This is not easy to solve, an unknown error has occurred during reassembling or trying to replace a line another error, not mentioned above has occurred (should never be displayed).

no label defined in line below - the line displayed has a statement which can have a label, but there are no characters within the inverted commas, e.g. GOTO "" will cause this error.

label too large (>16) in line below - a label has been defined or used which is greater than 16 characters.

label 'example' already defined - the label example has been defined at least once. You are only allowed unique labels within the whole of the program. You cannot use the same label in different modules.

no line number, label or statement - a statement requiring a line number label or more statements, hasn't got any, e.g. 10 IF A=1 THEN

Label 'example' not defined - the label 'example' has not got a definition in any of the modules, i.e. there is no line with the statement REM \$ "EXAMPLE"

Labeling Statements

The following statements can have labels instead of line numbers:

```
GOTO
GOSUB
ON GOTO
ON GOSUB
RESTORE
RESUME
```

Commands such as RUN, LIST etc CANNOT have labels, even if they are used within a BASIC program.

These commands can be expanded on. If new commands are added to the BASIC, then if these new commands use TOKEN matching, then they can be added to the Label-Linker.

See the section on "ABILITY TO UPGRADE" for further information.

Final Notes

During the time the Label-Linker is running, NEVER press RUN/STOP and RESTORE. If you have typed something wrong, or you just want the Linker to stop, then you will have to use the RESET button.

Another thing that you may find useful, is to set up the boot sector for the Label-Linker. To load, all you

would then have to type in 'BANK 10000'.

It is possible to have the Label-Linker permanently loaded, but you would have to redefine the start of BASIC variables to at least the address 55000.

The Label-Linker does its own renumbering, so when the program has been linked, you will find the line numbers in steps of 1, starting at 1. If this is not satisfactory, you can just RENUMBER the program.

Ability to Upgrade and Patches

As mentioned earlier, it is possible to upgrade this program to allow for extra devices or modules for modules, and it is also possible for it to cope with extra commands which may also use line numbers. All the statements within BASIC 7.0 which use line numbers have been included, but if BASIC is upgraded, then this program can cope with this. However, the new BASIC statements must be taken care of for this program to recognise it, and as one token label is not possible in BASIC 7.0, then two token labels must be used. As the tokens 80 and 90 have to be used to their full extent, expansion has been based around the use of these. For example, if you add a new BASIC statement 'CALL', and when interpreted by the BASIC which has been modified, it is converted to the token '80 944', then these values could be added to the Label-Linker such that if a label was placed after 'CALL' instead of a line number, then the Label-Linker will recognise it as a label, and replace it with the appropriate line number.

A utility program has been provided to do this for you.

The Utility Program

The utility program has been supplied in separate modules for you to use the Label-Linker on.

Each program should be stored under the names given in the comment block at the start of each module. The four modules are:

```
UTILMAIN
UPDATE DEVICE
UPDATE COMMAND
TEXTENTLMOD
```

(This is a simple text input and display module which could be modified and incorporated into your own programs if you wish.)

Run the Label-Linker as explained above. Press enter for the first prompt, and select screen or printer for the link-map. When prompted for the main module name type 'UTILMAIN' and press return. For other prompts, type in the following order:
UPDATE DEVICE (return)
UPDATE COMMAND (return)
TEXTENTLMOD (return)
(return)

It should now say linking in progress.

If all goes well, the messages 'pass 1' and 'pass 2' will be displayed, and then after a little while, the link map will be printed.

Save the program under the name 'LABEL-UTILITY'. Enter and save the program 'BOOT.UTIL'. To run the utility, type RUN 'BOOT.UTIL'.

A menu is displayed giving the options available.

The first option will let you change the device profiles with their corresponding numbers.

The adding ones are displayed and the program prompts for a prefix. Once entered, you give the device number you want to correspond to that prefix.

If you enter a prefix which already exists, then the device number will be changed to the new one just entered. If you entered a new prefix, and there is room in the table, then it is added to the table, with its corresponding device number.

To exit this change, just press enter when prompted for prefix.

The next two options are used to update the Label-Linker to recognise new commands which have been wedged into the operating system. The new commands are stored in BASIC programs and in the form of special values. As BASIC 7.0 used all the single byte values possible for their commands, it had to use double bytes to define commands. The commands can be expanded on, using the same technique, but if a new command uses two numbers, then you may want the Label-Linker to know about these new commands.

The current table contents are displayed, and the program prompts for a command. The two commands are 'I' for insert, or 'D' for delete.

When either option is given, the program then prompts for a token. If possible, the program then tries to either insert or delete the token from the table. If it can't then a message is

displayed saying what went wrong. To exit this screen, just press enter on the command line.

Option 2 erases the utility, and updates the Label-Linker. It compares the current version to 'OLINKER' deleting any previous copy, and puts the new version onto disk under the name 'LABEL-LINKER'.

Cassette Based Users

This program has been designed with disk users in mind, but should be possible to update the loader, and the BASIC programs for use with a cassette recorder. The main changes being the BLOAD and the BSAVE commands. The BLOAD could be replaced with 'LOAD' '1,1' and specifying the particular bank to be loaded.

BSAVE is a little more difficult. Either the monitor has to be used, or there may be ways of calling the save routine and specify the required parameters with BASIC, a programmers reference guide would be helpful.

Extra Program

Included also in this package, is a simple compactor program. It will remove all REMs and spaces from a program. For example it could be used to remove all the labels and the 'object' program by removing all REM statements if desired.

The loader is similar to the one used by the Label-Linker, and will require a 'boot loader' program. Type in the loader, then save it under the name 'COMPACT.DAT'. Load in the program 'Boot loader', and change the 'DLOAD' command to 'DLOAD COMPACT.DAT'.

Once this is done, save the loader under the name 'BOOTLOADER'. To run the program, just type 'RUN 'BOOTLOADER''. The loader will place the compactor in memory, then save a copy to disk under the name 'COMPACTOR'.

Using the Compactor

To load, type BLOAD 'COMPACTOR'.B'

To remove just spaces, type 'BANK: SYS2062,1,0'

To remove just REMs, type 'BANK: SYS2067,1,1'

To remove both REMs and spaces, type 'BANK:SYS2067,1,1'

See listings on page 182

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Games Reviews

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Star Wars

It's amazing how many of the Christmas games were based on arcade originals. Having drained as much as possible from Trivial Pursuit, Domark are now getting back into action games with Star Wars.

The game replays the closing scenes of the first Star Wars film as Luke Skywalker homes in on the Death Star to save the couple's place to the Empire's evil plans.

The game opens in deep space as Luke battles the Tie-Fighters of Darth Vader's fleet. There's nothing particularly innovative about this phase and the whole section strongly resembles an update on the old Star Trek action screens.

Eventually the battered attacker makes a run for cover and you can enter the second stage of the battle as you pick your way through the laser defence towers on the Death Star's surface. As you steer your X-Fighter through the forest of towers you have to blast the laser mounts on the top of each of them to proceed, in a poor man's Starfighter scenario.

The final attack phase is the grand let run over and under the obstacles ranged along the trench which leads to the Death Star's exhaust port. Depositing a high explosive

charge into the exhaust port at the end of the trench will finish the Empire's war machine and complete the game.

The game isn't spectacularly innovative but its strengths lie in the difficulty levels. There are three of these - for some undaunted souls numbered 1, 3 and 5 - the lowest level is fairly easy and ends the lower challenge but the highest level is sure to get the adrenalin flowing about.

For me, Domark often fall short of the mark but if you want steady action you might like to give this a try.

A.C.E.

Factfile:

Title: Star Wars. **Developer:** Domark. 27 Maryland Road, London SW19 5TA. Tel: 01-447 3622. **Marketing:** C&A. **Price:** £9.95 (C&A) £12.95 (day).

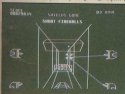
Originality: 10/10. **Playability:** 7/10. **Graphics:** 10/10. **Value:** 6/10.

Gary Lineker's Superstar Soccer

Football games seem to divide into two groups - you either play on the field where the International Soccer is King or watch from the sidelines in games like Football Manager. Gary Lineker's Superstar Soccer is set to change that as you not only select your team but also decide tactics and play either as the centre forward or the goalkeeper.

To play the full game you will have to buy a disk drive or be content with the recently out dated cassette version in which you only play the games themselves and miss out on some of the cup, promotion and relegation battles and the chance to improve your squad by training, diving into the transfer market or recruiting new players!

The cassette version does have all four league tables and starts you at the foot of the fourth but all you can do is play single games against human or computer opponents. These football matches are six minute games which can be speeded up to 15 times normal time. You can control either the





goalkeeper and hopefully make spectacular saves or lead the goal rush as the centre forward. The other four players are computer wingers and defenders whose actions depend on the tactics you select whenever the game stops because of a goal, ball-out or a throw in, corner or goal kick. These tactics determine how much of the defence will push up to support the forwards and whether the computer players will pass to you, the centre or shoot at goal themselves.

To make a shot you simply hold and release the fire button when the gauge at the top of the screen shows the direction you want to shoot in. To pass you must tap the button and push the joystick in one of eight directions that determines whether you pass the ball to a specified player, the nearest player or to anyone of the field. The fireworks really start flying when the ball is in the air as a press of the fire button will make your player leap to head the ball or even execute a period overhead scissors kick to send the ball flying past the keeper into the back of the net!

If you have the disk version then each game becomes more meaningful as a top score promotion or towards cup glory. You can select any team to play in either an English or American league and play 7 or 15 games each season then through there are 16 teams in each division.

To improve your chances you will need to strengthen your squad of ten players by trading them for more skilled players or spending some of your initial 250 trading points to send the entire team to a training camp or recruit a youngster and spend trading points to back up his skills. At the end of each season you'll receive more trading points depending on your achievements during the past year.

The object of the game is to win as many games, championships and cups as possible in nine seasons to achieve the highest possible rating. The complete disk version combines both football playing and management in a game for the first time that caters only to non-4A-like disk access times. However, even with these considerable delays this is better than the prototype version that has been cut into oblivion and is like playing football with one leg tied behind your back! The marks below are for the disk version. Console owners should half the marks as they only get half the game!

T.H.

Touchline:

Editor: Gary Atkinson's Superior Soccer. **Supplier:** Creative Graphics, 10 Canon Street, Sheffield, S1 4JS. Tel: 011-336 5177. **Machine:** C64. **Price:** £6.99 (C64) £14.99 (Disk). **Originality:** 7/10. **Playability:** 8/10. **Graphics:** 5/10. **Value:** 8/10.

Out Run

Well, US Gold, you told us that this was the 1987 blockbuster, the Christmas number one program and other such hype. In the main you told the truth but there are probably many disappointed purchasers boxed after a day's hard driving.

Out Run is certainly an impressive piece of programming but stripping away the original arcade game's high quality graphics and animation contents leaves a fairly average road racing game.

The conversion includes all five of the original routes but, once you've mastered the art of over-taking, most of the game is played with the accelerator hand on the floor and all you have to do is admire the scenery.



For real Out Run junkies there's a freebie audio tape from the original which resembles the musical wallpaper currently softening the sound of fast money being cashed up at the local hypermarket. Perhaps there's a hint of a Porsche slip in its inclusion with this package.

If you haven't seen Sega's Out Run - the arcade machine - it involves a cool dude in a hot red roadster with his seat cover by his side. After selecting a five second route he has to get through the traffic to complete each stage within a time limit to win the race and gain the admiration of the crowd.

This is accurately reproduced in the US Gold conversion but it lacks the spark of challenge and adrenalin to make it a worthy contender for the Number One slot. The programming has obviously been tickled with care to include as much detail from the original as is possible on the C64. Unfortunately, the compromise necessary to make it fit into the memory has not been compensated for and the result is a trail of nice program, shame about the game!

With Out Run we were pleased about things but it's amazing how some promises produce things that grate. Out Run adds too many bits to buy this as a memory of the great arcade game of 1986 but, like most memories, it's a poor substitute for the real experience.

A.C.E.

Touchline:

Editor: Out Run. **Supplier:** US Gold Ltd, Suite 2/2 Redford Way, Midford, Birmingham B6 4AT. Tel: 021-336 1081. **Machine:** C64. **Price:** £9.99 (C64) £14.99 (Disk). **Originality:** 4/10. **Playability:** 3/10. **Graphics:** 3/10. **Value:** 4/10.



PETER SHILTON'S HANDBALL MARADONA

Named after the "Hand of God" incident during the England Argentina 1986 World Cup match, Peter Shilton's Handball Maradona gives you a new perspective of the football field. You've scored winning goals for your club and country, even managed your favourite team to league and cup glory and now here's your chance to seize the day by scoring the number-one shot.

You begin the game as a class "A" goalkeeper and have to build your way up to class "P" (for Peter Shilton!).

Once you have selected the team you're playing for you are presented with a menu that allows you to practice a few times, play a game or try for a skill upgrading.

If you play a game you see your goal, which is handily defended by two useless defenders and between one and three opposing forwards. These players will pass or dribble the ball before they shoot and so you have to be ready for anything. You even have to save corners, free kicks and penalties. Pushing the joystick left and right will move your keeper across the goal with other directions sending him diving to all parts of your goal.

It will take some time for you to anticipate the forward's move, but when you do you'll save some of the eight shots at goal and your side will win. The result doesn't seem important and is mainly there for interest and to give you practice. Your most important task is to improve your skill rating.

Skill upgrading is harder than it seems as you have four shots to save but you fail as soon as you let one in. Success and you'll get a four digit code which you can enter when you load in the game another day, so you don't have to replay your hard fought wins.

Although there isn't much to the game (that's all talk!) it is a surprisingly addictive.

T.H.

Function:

Title: Peter Shilton's Handball Maradona. **Supplier:** Big Five, Argo Press Software, Victory House, Leicester, Tel: 0533 6666. **Machine:** C64, Plus1, 1.1.89.

Originality: 7/10. **Playability:** 7/10. **Graphics:** 6/10. **Value:** 7/10.

X-15 ALPHA MISSION

I've always had a weakness for vector graphics games, ever since I saw Star Wars in the arcade, and so I was delighted to see X-15 Alpha Mission on release. Although the graphics are nothing special, the game is non-the-less addictive.

You play the part of a fighter pilot, who possesses great war tactics. NASA has started to receive strange messages that were beaming off the Moon to Earth, which turned out to be ransom demands for huge sums of money. The threats were from terrorists, who were planning space station, and would blow up major American cities and microwave President Reagan unless they were given the money.

Blowing up cities is okay, but microwaving President Reagan? You're sent to destroy the space station straight away.

At the start of the game you have to launch the ship into the sky which is quite easy and can soon be mastered. There are three levels of play that involve flying, the first being before cloud level, where you must shoot down helicopters and dodge nuclear missiles.

The second level takes you up into the clouds, where I became sick, but soon got over it. You just shoot and dodge again, but this time it's against jet aircraft and kamikaze gliders.

Finally we have space, where no one can beat you anymore - however, Spacehips are now your enemy and will attempt to blow you apart. They look rather like tie-fighters from Star Wars, but then again, this is distributed by Lucas Films. Anyway, once you've blown up the tie-fighters you must then avoid asteroid belts and deal with the spacestation, where you have to enter a special code in order to access it. The code number is given at the beginning of each game, and changes each time you play.



When you have docked at the space station, a small capsule is released from your spaceship and must be guided gently down onto the surface of the space station while avoiding the small reactors.

Once this is done and you have landed you can then begin your search on the space station.

Eight robots emerge from your spaceship and you take control of each one in turn. There are eight different movements (functions) for the robots, but as they are not listed in the instructions, you will have to fire at them off by

heart. These skills can be used to pump other robots and burn away rubble from the planet's surface or even self-destruct, but it is wise to do this only when you are near a weapons station, which are poles that stick out of the planet. You must destroy eight of these in order to blow up the space station, and as you run past, you can't afford to lose any robots.

Now, as you can see, there is a heck of a lot to do in this game, although going by its graphics, it is still pretty average looking, and the sound is merely unimpressive, but it's still a very playable game - take it from me. **K.B.**

Touchline:

Title: *N-13 Alpha Mission*. **Supplier:** Activision. **US Ford Server:** *Hampton, London SW3 2PN. Tel: 01-461 1361.*
Machine: C64. **Price:** £9.99.
Graphics: 4/10. **Playability:** 8/10. **Originality:** 6/10. **Value:** 5/10.

ALICE IN WONDERLAND

Be aware the Jabberwock my son, the laws that bite the claws that catch. Beware the Budget bird and then the dubious Big Byte catch!



I did think of starting this review with *Facouse* in large capital letters as APS subsidiary Big Byte appear to be trying it on and possibly contravening trading standards. Is this a tip off or is it a tip off?

It's golden oldie time at Big Byte and they've dredged this one up from the days when the video synthesis would be described as revolutionary and the graphics as stunning. Today it merely looks sad.

'Curiouser and curiouser', exclaims Alice at the beginning of the game and on finishing the first very, very dreary level the curiousity was revealed. This is not the Antagonistic multi-load cassette, it's (should I hear?) the first part of the disk version! As Alice reaches the end of her perambulation along a dragon infested mountain road the screen invites player one to switch on his disk drive to load part 2.

Depriving my efforts I could not find any scenes to match those depicted on the cassette insert, a possible case of

misleading packaging, methods.

The tawdry gameplay involves Alice as the mountain road being assailed by three, ill-advised and ill-defined dragons who vanish into some dragonous afterlife if they touch her. Every now and again the dragons change colour to herald the arrival of the Jabberwock. After the next colour change Jabberwock arrives looking like a handsome creature and far less dangerous. Now is the time the dragons have waited for as they home in to devour one of Alice's six lives unless Alice gets the Jabberwock first. Woe!

Even less frequently, wandering down based across the screen, if Alice fails to pump over a door she's whisked back to the start of her walk. Grrrr!

Come off it APS. Try and pull the wool over someone else's eyes. Mutter in Videoland is a video store; avoid it at all costs but let the Mad Hatter and his friends have the last say:

"This piece of madness was more than Alice could bear, she got up in great disgust, and walked off; the Dormouse fell asleep instantly and neither of the others took the least notice..."

E.D.

Touchline:

Name: *Alice in Videoland*. **Supplier:** Big Byte, Victory House, Leatherside Place, London WC2N 7AE. **Tel:** 01-449 0066. **Machine:** C64. **Price:** £2.99.
Originality: 0/10. **Playability:** 1/10. **Graphics:** 3/10. **Value:** 0/10.

EDDIE KIDDO'S JUMP CHALLENGE

My best advice is not to buy it. This game refuses to lie down and die... sorry, it refuses to lie down, it died a long time ago.

The master principle of this game is to ride a motorbike up a ramp and jump over a row of cars. I always understood the principle of acceleration to be one of steadily increasing momentum. Obviously I was misled by my physics teacher as according to this game, acceleration is one of steadily



increasing noise. As Eddie 'speeds up' the background passes by at the same constant rate and goes on and on and on...

An age later you meet the ramp, take off, and fight to control the altitude of the bike to make a safe landing. If you fail, Eddie leaps off the screen and you're back at the start of your run up.

If Eddie Kidd is a modern day Koolhaas, then Ricochet seems to have gone off ideas with this escape (surely it's not a refuel?). Maritech must be laughing all the way to the bank after off-loading this pile of tripe onto Masterworks.

E.D.

Touchline

Name: Eddie Kidd's Jump Challenge. **Suppliers:** Ricochet, 4-19 Paul Street, London EC2A 4NE. Tel: 01-372 8880
Machine: C&A. **Price:** £1.99.
Originality: 1/10. **Playability:** 0/10. **Graphics:** 1/10. **Value:** 1/10.

crash into you or move back on himself, before he does himself to you, and Space War is a variation on the same theme except that you must also avoid the sun/gravitational pull.

Five games for two quid seems to be good value for money but the games are extremely crude by today's standards, even if they are fair copies of the originals. Unless you are desperate for one of these oddies to complete your collection, stay well away. **GRH.**

Touchline

Filer: Arcade Classics. **Supplier:** Firebird Silver, First Floor, 64-67 New Oxford Street, London WC1A 1PS. Tel: 01-379 8715. **Machine:** C&A. **Price:** £1.99.
Originality: 1/10. **Graphics:** 1/10. **Playability:** 0/10. **Value:** 1/10.

COIN-OP CLASSICS

In this age of compilations, US Gold have bundled three of their coin-op versions together for the price of one game.

Kung-Fu Master is, as you might suspect, a martial arts beat-'em-up. As usual, there is a prince who has got himself captured, and it is up to you to organise a rescue. Various headmen block your way together with fire-breathing dragons, killer bees, psychotropic chemicals and exploding vases. If you make your way to the end of a level, a final confrontation with a guardian is all that stops your progress. This is a reasonable game of its type, despite some blocky graphics.

Breakthru sees you trying to penetrate deft mines behind enemy lines in order to rescue one of your country's top secret agents. You are armed only with a jeep but it does have the advantage that it can fly and jump over distances. There are five different terrains for you to cross should you accept the mission.

Conrad Castles is, despite the hype accompanying it, no more than a glorified Pacman derivative. Bontley Bear must collect gems while avoiding the various snakes. There are tunnels and lifts which can aid or hinder you.

Although compilations appear to be good value for money, you have to watch what you are getting. Here, only one game is a snag (Kung Fu) whereas the other two are



ARCADE CLASSICS

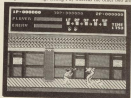
They say that nostalgia isn't what it used to be. Was it really that long ago that we gazed with amazement at designs such as Space Invaders and Asteroids?

For any of you who have forgotten what computer games used to look like, Firebird have assembled four different classic titles in one game.

Space Invaders is the daddy of all shoot-'em-ups. Left, right and fire are the basic controls, as you dodge from under the bunnies to wipe out row after row of aliens as they pursue their over-the-horizon path down the screen towards you.

Big Boss have little fleas upon their backs to bite 'em. Little Boss have fatter fleas and so on infestation - the basic principle of Asteroids. You are trapped in a giant storm of these huge space boulders, and as you shoot at the rocks they break up into medium sized rocks which in turn become small rocks. Contact with any of them, not surprisingly, is fatal.

The other two games are, somewhat disappointingly, two player games. Surely there was enough one player games around or, failing that, computer opponents available. Snakes is an attempt to make your opponent

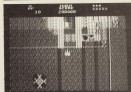


downright awful. If you were born on the arcade originals, then you might consider buying this but otherwise, I suggest you give it a wide berth.

G.R.H.

Touchline:

Title: *Swamp Fever*. **Supplier:** US Gold Ltd, Unit 2/3 Hedford Way, Hedford, Birmingham B8 3AH. Tel: 021-335 3388. **Machine:** C64. **Price:** £9.95. **Originality:** 1/10. **Playability:** 4/10. **Graphics:** 4/10. **Value:** 3/10.



THE LAST MISSION

Zooooommmmm, zzzzz, yawn, oh, hello, sorry about that I've just been playing *The Last Mission*, the latest conversion from US Gold.

The story has it that you are an outcast, driven from your home galaxy - why I don't know. Anyway it goes on to say that you must return to your home, blow up the aliens that are trying to take over your homeworld. If you do this you will no longer have to live in exile, you would be a hero. So how can you refuse - you jump into your super-star fighter and zoom off to your home planet.

On arrival you discover that you have zoomed into a really poor arcade conversion. Your home looks like it's made out of legs bricks and the space ships are bland and small, but the music that your on-board computer is playing is quite good.

Scattered around the planets are various sites which when shot release a powerful weapon of some kind - simply fly over these to pick them up, then it will be fitted to your ship.

I cannot recommend this at £9.99, it just isn't up to scratch. It could be different if it was a budget game, but as it stands I would leave well alone.

S.R.

Touchline:

Title: *The Last Mission*. **Supplier:** US Gold/Unit 2/3 Hedford Way, Hedford, Birmingham B8 3AH. Tel: 021-335 3388. **Machine:** C64. **Price:** £9.99/Caj/C14.99 (S&L). **Originality:** 5/10. **Playability:** 4/10. **Graphics:** 5/10. **Value:** 1/10.

SWAMP FEVER

David Bellamy may get into some scrapes but at least it's bad as this. Professor Gribble has taken on the mission to recover as many rare Azura flowers as possible from the isolated swamps of Florida.

The radiation has mutated the swampland creatures into man-eating monsters with a penchant for professors. Armed only with a flamethrower the professor has to fight his way through 35 swampy screens picking flowers as he goes.

Every now and again the swamp fever infected creatures swarm around the professor and he has to flee onto a neighbouring swamp to free himself of the threat.

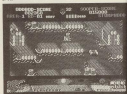
The scenario seems quite respectable but the game itself is awful. Whilst programming there is has been previously executed, but each swampy maze falls into one of two types each variation round these limited themes differing only in graphics design. The two basic maps of the maze do not seem to vary at all.

Players have basically ended up with a two screen game with very limited action. Even at budget price this is an extremely disappointing product.

E.B.

Touchline:

Name: *Swamp Fever*. **Supplier:** Playtex, Tel: 02184 31666. **Machine:** C64. **Price:** £1.99. **Originality:** 1/10. **Playability:** 1/10. **Graphics:** 2/10. **Value:** 2/10.



PIR SQUARED

Well, I expected another run-of-the-mill arcade game that was nothing to write home about, but I was pleasantly surprised with this recent release from Argus Press. The first thing that struck me about the game was the colourful, as well-drawn loading screen, but I still remained sceptical. As the game loaded, rather a nice tune played, and grows cautious I started the game. I found it to be a highly playable additive arcade game that was also quite frustrating.

You play Professor Brain Storm who is just about to appear on TV to give a lecture on geometric maths. So the you are feeling pretty confident when suddenly your ship

begins to wander. What lousy timing - the credits are beginning to roll and the intro, music playing and your standing there daydreaming. "Oh no, it's happening again," it must be funny as new player Prof. can hardly remember his own name, let alone a formula. However hard he tries to think he can't get back to normal. All hope is not yet lost however as there's now a chance for Prof. to reconstruct his memory, and hopefully recover the formulae.

That's where you come in - move around the cog and wheels of the Prof's brain, recovering the lost formulae and collecting various other useful items such as calculators which increase your speed. As well as useful aids, there are also objects which hinder you (e.g. thoughtless like ice cream and naked women (you filthy E.D.s).

So there you have it, a pretty enjoyable game from Argus Press Software, but I feel the asking price is a little too expensive at just under a pound. If you are die-hard and buy it, it's not have a look at it if you can.

J.B.

Touchline:

Title: *PM Squared*. **Supplier:** Argus Press Software, Victory House, Levensham Place, London, WC2N 6AR. **Tel:** 01-439 0000. **Price:** £5.99 (Cass £12.99 (Dink). **Machine:** C64. **Graphics:** 9/10. **Originality:** 8/10. **Playability:** 7/10. **Value:** 6/10.

Once at sea, you have to prime your cannon ready for any potential action. This involves selecting which of the fifteen guns are to be loaded and following a set pattern of moving the powder, dumping it down, putting in the ball, etc. If all goes well, the cannon indicators change colour. Get the sequence wrong and you have to start all over again.

When in combat, you will need to find the right elevation for your guns with a few test shots before moving along the row of cannon trying to sink the enemy. Of course, he is trying to do the same to you unless you by him will result in your own falling by their guns. If you succeed in defeating the enemy, you get the chance to plunder for information or gold, but not both.

Despite the large colourful graphics, the game is slow to play and a little difficult to control despite being touch/mouse driven. If you are looking for a strategy game, then *Pirates from Microprose* is infinitely better. If it is action that you want, again, there are better games on the market. *Pirates of the Barbary Coast* seems to fall between two stools.

G.B.H.

Touchline:

Title: *Pirates of the Barbary Coast*. **Supplier:** Cascade Games Ltd, 1-5 Mayson Crescent, Morley, North Yorkshire HG1 3BA. **Tel:** 0427 325523. **Machine:** C64 - disk only. **Price:** £14.99. **Originality:** 7/10. **Playability:** 4/10. **Graphics:** 8/10. **Value:** 3/10.

GAME OVER

What an original title, *Game Over* - it's clever, yet so simple. I bet loads of software houses are kicking themselves saying "why didn't we think of a title like that?"

But what is the game like? Well, I can assure you, you will not be disappointed. You play Arkus who lives far away in a distant galaxy and is a faithful servant to the Benevolent but totally evil Granda. Arkus is a ruthless cyborg-type being, who used to follow Granda's every command, but as her power grew so did her greed, and now Arkus can take no more.

He joined the rebel forces in a plot to overthrow her and

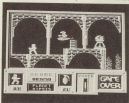


PIRATES OF THE BARBARY COAST

Your daughter has been kidnapped and is being held to ransom by the evil Pirate Bloodthirst. You have thirty days to come up with 50,000 gold pieces or else.

You have two main courses of action available to you. You can try and raise the money by buying and selling goods along the South African coast and you can try and find the worst lot of Bloodthirst and destroy him.

The game is a combination of strategy and action. Starting off in a friendly port, you have to hire and fire crew, keep them fed and juggle the supplies within your hold, juggling with merchants for the best prices. If your ship is damaged, you can take the opportunity to get it repaired for payment of the appropriate amount of gold. Choose your destination and set sail.



to destroy her palace for good.

When the attack was agreed, Arkos decided it would be best if he went alone, after all, he knew the route to the palace and could fight better than any mortal. The other rebels agreed and Arkos set forward to rid the planet of the evil Genia. Kill everything that gets in your way, and anything that doesn't!

The game comes in two parts; the first being the planet Hypnia. This is the easy part as you only need to reach the 11th screen to confront and kill the mighty Oiko, who was once your friend and is now your worst enemy, and must be shot many times before he dies. Progress will not be gained until he is dead.

To aid you on your quest you will find red barrels, which must be shot three times to unleash their contents. Some contain various weapons and power hearts, but there is a chance that a mine lies inside so you have to watch your step as the mines are very deadly. They can only be passed by using a field of force (also found in the barrels) or jumped, but this may be impossible in some situations.

The backdrops and aliens are very nicely drawn and this makes the game a lot more playable, however you may soon find yourself cursing this game as it can sometimes prove very hard, and especially frustrating. This said, it is still a nicely presented game that plays reasonably well with some nice sound and spot effects thrown in. However, it could have been improved with in-game music and better control of the main character, but you can't have everything can you?

K.R.

Touchline:

Title: *Game Over*. **Supplier:** *Imagine, 4 Central Street, Manchester, M1 5NJ. Tel: 081-517 9610. Price:* £8.99. **Originality:** 8/10. **Playability:** 7/10. **Graphics:** 8/10. **Value:** 6/10.



REBEL

This new game from Virgin has a really good story line; try and imagine this. You are forced to work for a plantation owner, where the shifts are long and hard, and no-one knows what the word cry means and when you reach just over thirty

you are terminated - not very nice, huh?

The new plantation supervisor has decided to try and improve production, which he does by creating a workforce of zombies. Sleep is controlled by him, and you sleep in a special chamber which makes you sleep and wake up in the morning. There are countless pills to be taken but these do nothing much, just slow your brain down - they are known as the Tump-a-pills and they slowly take away your resistance. Our hero has managed to stop taking these pills and now realises the danger.

This is where you step in; you have to guide a tank containing our hero, around the giant base switching the solar panels so they will direct the power beam into a selected wall on each level. When you are satisfied with this, fire the laser beam and hope you got it right. If you do you'll go onto the next level, if not you'll lose a life.

As you advance through the levels, the backdrops change but that's about it, you will get the same aliens, same tank, and so after a while you may find yourself getting bored. This is a shame as the game has some wonderful graphics, but stumbles on the gameplay side. If this had been a fairer test it would have been good, but at just under a tenner it's not really very good value.

K.R.

Touchline:

Title: *Rebel*. **Supplier:** *Virgin 3-4 Vernon Road, Parkville Road, London W11 2JY. Telephone:* 01-727 8070. **Originality:** 4/10. **Playability:** 6/10. **Graphics:** 7/10. **Value:** 4/10.

NICK FAIRDO

Here's your chance to hack your way through the rough and bunkers of the Royal St. Georges course in Sandwich.

As a low driver golf game, you must select your club (and suffer the sarcastic comments of your caddy should your choice differ from his own not so humble opinion), direction and strength of the shot. Your player lines up the shot automatically and wacks the ball according to your predetermined instructions.

The upper portion of the screen gives a top down view of the hole and if like me, your shoes are nowhere near the fairway, you can call up a map of the surrounding area to show where you are in relation to the green.

All in well until you actually land on the green and your ball is lying a couple of feet from the hole. Distinguishing between the hole and ball becomes next to impossible and you have actually putted six from a short distance.

This would have been a reasonably of somewhat complete simulation but for the putting blam. If you want a really good golf game, then save your money and buy World Class Leaderboard instead.

G.R.H.

Touchline:

Title: *Nick Faido Plays The Open*. **Supplier:** *King-Byte, Plover House, Lechliffe Park, London WC2N 7NE. Tel:* 01-49 0668. **Machine:** C64. **Price:** £1.99. **Originality:** 1/10. **Playability:** 1/10. **Graphics:** 4/10. **Value:** 2/10.

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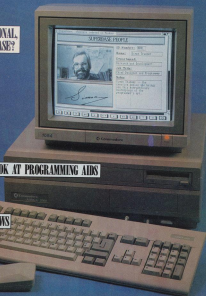
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A 20Mbyte SupraDrive hard disk unit

Hard News

A new series of Amiga compatible hard disk systems have been launched in the USA by the Supra Corporation. The high performance systems incorporate a hard disk drive in one of four capacities, SCSI expansion port and provide RAM expansion capabilities.

The four drives have 20, 30-60 and 250 Mbyte capacities and retail in the States at \$995, \$1195, \$1995 and \$2995 respectively.

The SupraDrives plug directly into the Amiga 580 expansion socket and feature Supra's own high speed data transfer interface. Burst data transfer speeds of 158Kbytes per second can be achieved to complement the fast seeking hard drives.

RAM boards of 1 or 20Mbyte capacity can be plugged into the hard disk units and the separate power supply of the units is used to power the expansion boards to avoid overloading the Amiga.

New Lasers

Two new laser printers are ready for launch from Brother and Star Micronics.

The Brother HL-8 has a printout speed of eight pages per minute. Access to five resident fonts may be supplemented through two front cartridge slots making it suitable for desktop publishing applications.

The speed of the Brother machine is matched by Star's LaserPrinter 8. These are right fonts resident in the machine, cartridge expansion capability and user definable characters can be specified at the cost of a small part of the internal 1Mbyte memory. Laser Printer 8 can operate in both landscape and portrait formats and up to 64 different fonts can be included on a single tape.

Despite all of these facilities the price has been kept to a relatively low £2,195 including a year's on-site parts and labour warranty.

Touchline

Brother Computer Peripherals Division: *James Brother, Murphy Avenue, Goble Bridge, Aylesham, Kent* MK4 3JD. Tel: 091-530 6255.

Star Micronics UK: *Crown House, 46 Uxbridge Road, Ealing, London W3 2PS.* Tel: 01-849 1680.

CRL's Amiga Range

CRL have announced their plans to release three new games for the Amiga: Blackshadow, Tau Ceti and Academy.

In Blackshadow you command a spacecraft which flies over a vast, hostile armed asteroid. After running the gamut of defence systems, knocking out as many of the weapons as possible, the final target on each level has to be destroyed.

Tau Ceti and Academy have already been seen on the CRL but the Amiga versions promise extra excitement and realism.

Tau Ceti takes place on a derelict planet and your mission is to close down the malfunctioning systems which have defied all attempts to previous adventures. In realistic 3D vector graphics, you must watch the clock in your skimmer (and) and collect the tools which are needed to shut down the massive fusion reactor which fuels the planet.

Academy is the follow up to Tau Ceti which allows you to design your own skimmer. After graduating from the Academy, you are able to tackle one of 20 missions (most success will rely on the design of your skimmer).

All three CRL games have a retail price of £39.95.

Touchline

CRL: *CRL House, 9 King's Yard, Carpenter's Road, London E7J 2HD.* Tel: 01-533 2518.

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Abstract **Background:** The purpose of this study was to determine if there were differences in the prevalence of self-reported depression between men and women who had been exposed to violence by intimate partners.

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Abstract The purpose of this study was to determine the effect of a 12-week training program on the strength and endurance of the neck and shoulder muscles in young men. The subjects were 15 male students, aged 19-22 years, who were divided into two groups: a control group and an experimental group. The experimental group underwent a 12-week training program consisting of three sessions per week, each lasting 30 minutes. The training program included exercises for the neck and shoulder muscles, such as isometric and dynamic exercises. The control group did not undergo any training. The strength and endurance of the neck and shoulder muscles were measured at the beginning and end of the 12-week period. The results showed that the experimental group had significantly higher strength and endurance compared to the control group at the end of the 12-week period. The findings suggest that a 12-week training program can effectively improve the strength and endurance of the neck and shoulder muscles in young men.

Abstract

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Abstract

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Jim Smith and Alan Gwyn receive their prize from John Spiller, MD of WordPro International

Wonderful WordStar

Celebrations were called for when MicroPro passed the three million sales figure for their WordStar package. The crystal landmark was due to be released in late 1987, so a special promotion was embarked upon with the promise of a fantastic £100 bonus holiday for the lucky purchaser of the three millionth copy of the wordprocessor.

The actual purchaser of the momentous package could not be accurately ascertained to anyone buying their copy of WordStar during September and October because eligible for the Celebration Draw made at London's Harlington Club on November 28th.

The lucky recipient of the first prize was Ron Baker of Romford. Ron works for British Telecom International as an implementation and design engineer and it was in this capacity that he registered the software on BT's behalf. The prize is a holiday for two which he will share with his wife, Joan.

The second prize, a compact disk player, was won by Alan Gwyn from the Department of Physics at Queens Hospital, Edgware. An Olympus Trip camera formed the third prize awarded to John Waters, Senior Lecturer in charge of Computing at North Hertfordshire College.

The three million sales figure is less

than a decade by MicroPro's starting when seen on a daily sales basis. To reach this volume of sales, almost 1000 WordStar units will have been shipped out every day! Perhaps we'll see the first millionth sales in May or June 1990.

Forwarder:
MicroPro International, Margrave
Avenue, 28/29 High Street, Wokingham
Village, London SW19 3BN. Tel: 07-
879 1322.

Invisible Arts Package

The Amiga reached up another TV screen before the end of 1987 when Channel 4's Horrible Hour series presented Clorilla Tape Productions' programme Invisible TV featuring effects generated on an Amiga running Electronic Art's DeluxePaint II.

ITV, a British TV station, was used as a vehicle to expose the 'propaganda' which with half in the guise of popular entertainment. The message was spread by using examples of a typical day's broadcasting in which different types of programmes were all given the hip-hop scratch treatment.

Special effects were created by computer graphic artist Gary Whitley who has used the Amiga in several previous productions as a suitable alternative to graphics production equipment costing many

times that of the computer. DeluxePaint II provided a suitable environment for the production of the extraordinary effects which Whitley realised.

Forwarder:
Electronic Art/Clorilla Business
Centre, 21-25 Station Road, Loughborough
Leicestershire LE12 4YR. Tel: 0753 49442.

ProWrite Update

A new version of ProWrite - V2.0 - is available which has many added features. Of special interest is the self selection default specifications. All start up parameters such as font, justification, spacing and colours can be predetermined and several preference files can be stored and loaded whenever required.

Graphics and text dumps have been greatly improved giving speeds which may reach ten times that of previous versions. In text mode the program will run as fast as the printer will allow. High resolution printers can be fed with a smoothed output which permits true letter quality printouts from any of the Amiga fonts.

Printouts can be set to any width through ProWrite 2.0 using the sideways printing capability for extra wide paper.

Hard pictures, such as those created with DigiPaint, can be loaded into ProWrite and revised.

Paragraph formatting options have been incorporated to allow one and a half spacing, fixed line height and the inclusion of a blank separating line between each paragraph. The finished paragraphs can be sorted into ascending or descending order to assist in creating a table or for editing the custom user dictionary which complements the fixed 95,000 word spelling checker.

Character, word, sentence, paragraph, picture and page counts can be easily accessed for full document information windows.

These are just the main improvements, many more alterations and fine tunings have been incorporated to increase the power of this vastly improved product from New Horizons Software.

Forwarder:

New Horizons Software P.O. Box
42365, Austin, Texas, 78743. Tel: 010-
312 329 6838.

Amiga Gossip

The recent news about virus disks has set the Amiga world jangling with fear, one software producer told me that nearly 40% of his disks were "infected" with a virus that occasionally popped up with the message "YOUR MACHINE HAS BEEN INFECTED".

In America - where the virus is believed to have first started - there are no less than three major disk infections - all of which recognise the other viruses and react accordingly. For instance, one disk virus forces another (found in DEC USA - Palo Alto) to pop up with the message "A Virus... Runny! Dances Time".

This ain't funny anymore

I was recently talking to Darryl Mayo, a British software programmer hoping to start breaking into the Amiga Software scene with "Antuan" (or should that be Antfrax?), he was grieving about the fact that one of these viruses got in the way of his custom disk protection system, his fear is that unless you switch the Amiga off between every disk swap, the chances are quite high that a similarly protected disk will get fiddled around with, thus rendering it useless.

Amiga Wars

In a meeting, George Lucas was reportedly asked if he had considered supporting the Amiga for some of the new mega-games doing the rounds, apparently he came up with the answer: "Rounded down to the next million, there are no Amigas in the world".

CBM Emulation - again

I have just found out that a third CBM emulator is nearly finished, it will be shown around the major hardware companies soon. Called "Card128" this item is aimed fairly and squarely at Amiga 500 owners who have no memory expansion whatsoever - it plugs under the machine (where an additional memory card is normally fitted).

Sporting a Z80 and a 6812 CPU, this machine emulates a CBM and a C128 with "as near as dammit" software compatibility. There is a port for the 1512 disk drive, the drive controller software is reportedly inside the Amiga.

Naturally this is pure gossip, but rumour has it that Card128 works like MS-DOS on the Amiga 500, i.e. it has a window on the workbench that can act as a task under emulation! If this is the case, then transferring files from one machine to another should be a cinch.

Take your Pick

There were a few sad faces at COMDEX recently as rumours were flying around that the XENIX operating system had been developed as an alternative operating system to AmigaDOS is close the Amiga's own one proved to be bug ridden! Mind you, I also heard that TRIPOS developed in the UK by the same team that did Sinclair's QL1 was on the cards as well!

The last I heard of the XENIX rumour was when I heard a CBM man at the bar saying - "well if we have developed it, then it wouldn't work

anyway, but if we haven't, then we are as hell well used".

Latest news is that the A2004 colour monitor is on show in America, released to coincide with COMDEX, this little beauty has 1000 x 800 resolution. All of the pictures were as sharp and there's no interface resolution. CBM were pretty cagey about the price, and as for the cost - YUK! I have seen better crafted monitors at the Atari stand - sorry guys, but it's an ugly S.O.B.

CBM Digitizer?

A new video digitiser called "DIGIT Line!" was quickly being shown by a dealer (with a CBM badge!) I gather the plan is to get the Amiga audience "primed" by using products from Minneton and Newtek, as soon as everybody is familiar with digitising hardware and software, CBM will jump in with a licensed DIGIT "Line!" card and clean up on the professional market. Only a pre-production model was on show, but it looks promising as it runs at 30 frames a second with 7 bits for each RGB colour, as opposed to the 3 or 4 you get with "ALIVE!".

Before you start thinking of replacing your 68000 inside the Amiga with a 68018, I got a call last week from a guy in Utah thinking about the big the name of the Pycnosin game will work with it fitted - I haven't been able to get any response from Pycnosin at this one yet, but then it's your fault for changing the Amiga's CPU isn't it?

This is a great little rumour. But you know that the developers of the Amiga 80light took and had to have PC slots in the A2000 - yet the American reviewers stated it for the omission - isn't life tragic!

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Amiga On Line

Who? Anyone with an Amiga 500, 1000 or 2000, Kickstart 1.2 only.

When? From now on.

How? By dialling this number for information: 01 597 2391.

Computer will tell you how to get onto a special bulletin board from which you can download the terminal software. This gets you onto Computer for a look around. At this stage you can register your first subscription online.

How Much?

The subscription costs £19.99. Most regular users then pay for an 'off peak' rate on top which works out at about £18 per quarter. Otherwise London area users can get onto Computer at 49p per hour. Outside London, with access via the ISDN network, it costs £4 per hour.

Computer already has a lively Amiga section formed by C64 upgraders with advice, criticism and debate, among other things, on shareware and public domain software. Nor are other computers excluded. Atari ST and PC users will soon join and swell the ranks. There is even a lively Amiga versus Archimedes battle being waged at I write.

Window Magic

The terminal software, written by *Adelphi Software* - of 'Kickstart Guide' fame - is brilliant and fascinating to use. It operates in the full multitasking environment, with separate on-screen windows and pull down menus. This means that the Workbench, indeed any software, is available for use while Computer is online. The prospect is in sight of downloading large files - as programs naturally expand to fill the available memory - in the background while you carry on doing something else!

Within the terminal this feature is used to maintain a directory display in

one window while accessing pages of text or running demos in another, the picture window. A third window, the editor, can be opened. The editor can be used offline, the contents remaining intact in the editor while you go online to Computer. While online, the contents of the picture window can be instantly copied into the editor. Any editing done can be accepted for use or rejected, in which case the editor window is restored to its original appearance.

But can an Amiga screen cope with a C64 display? Or are you confined to a special Amiga part of Computer? As you might expect, the terminal software takes care of it, emulating the 64 character set for text based material. It is also possible to save 64 software to disk if you so wish. Computer is a simple way of porting the data between machines. You might wish to convert a 64 BASIC program into Amiga Microsoft BASIC for instance or, less likely, vice versa. Amiga high resolution graphics will also be possible, the data being downloaded for display by the computer.

The terms already on the menu when I viewed the development version of the software were LOGIN, SETUP, DROP and QUIT and MAIL, CAT, EXECUTE, EXTEND, VOTE (a vital bit of people power on Computer), ACCOUNT, and LEAVE. Instead of scrolling through and highlighting commands, the Amiga user clicks with the mouse pointer on gauges. The directory entries can be clicked on to move to a lower level of the directory tree or to activate a demo or set of text pages.

All the features familiar from the C64 are available to the Amiga user, including electronic mail.

New Features

I mentioned the problem of the sheer size of Amiga programs. Computer

Amiga owners now have the opportunity to tap into the wealth of demos, utilities, debates and user feedback which is CompuNet.

By A. Owen



currently operates at the standard 1200/75 on the Infotrac network, 1200 is acceptable from CompuNet to the user, but say you want to send something to CompuNet 75 has a minimum. CompuNet itself will undoubtedly support 1200/1200 one day when the majority of users have the appropriate modems, but in the meantime a separate 1200/1200 line will be made available for the London area. Amiga subscribers will also be able to send their disks to CompuNet for them to upload onto the system. CompuNet will be offering a modem deal to potential subscribers which will offer, at the least, an upgrade path to 1200/1200.

The terminal is currently 80 column but a 40 column version will probably be developed for those using an Amiga 500 in conjunction with a television. Of course the advantage of being on CompuNet is that you can update your terminal software from the database when new features are added, software support business users pay 1200s for.

Conclusions

CompuNet itself is a very promising resource for the Amiga user. It is likely that the demo and software base will quickly benefit from upgraders, coders and importers of Amiga material. There are already many demos available on disc. If the C64 material is anything to go by – there are well over 1,000 demos, games, music, utilities and art – Amiga owners will have plenty to keep them busy. The national policy is to let authors put their own material onto CompuNet, to monitor its success with other users and, as editor Jane Firbank puts it, to “immortalise the good stuff”. Until something even better comes along.

The terminal software is of a very high standard with all the usual features such as resizable windows, registers – for a number to dial for instance – and pull-downs. It was most impressed with the operation of the multi-tasking. Arisdon have fulfilled an ambitious design.

Help at Hand

Pop-up Utilities to make life easier.

By Anne Owen

Complexed as it is, the Amiga was bound to spawn utilities to harness the 'power' without the pain. I set out to test a few of the latest.

Zing! Keys

This is not just an add-on for owners of Zing!, a menu/control panel for AmigaDOS, by Meridian Software. Zing! Keys certainly works very well with Zing! but the provision of macro keys for any application, from DOS to Deluxe Paint 2, is potentially very useful for any Amiga user.

Macros are of course available within some software packages, e.g. WordPerfect. Most however contain no such facility. A macro is a series of key presses or commands held together in a form which can be called up by a single key press. For instance, while using the Scribbled wordprocessor, you can press a previously defined macro key to insert a series of 'del' commands to format your document. Zing! Keys has a number of very useful built-in macros but any number can be defined by the user and assigned to Hot Keys. The Hot Keys is the key combination which calls up the macro function.

An amazing feature of Zing! keys is that you can record events as well as strings of text or key presses. There are a number of already defined insertion macros which size and move windows with single key presses. Mouse movements and clicks can also be programmed into macros.

Macros can be edited, saved, loaded and merged. The definitions can be nested, delays inserted and variables introduced, e.g. prompting for a filename from the user, a string which is then entered into a command line.

Further use of this ability to 'record' is made with the HISTORY command. CLI commands are

recorded and can be retrieved into a gadget window for editing and reuse. A more unusual use is the SECURITY-LOCK command which locks the keyboard until a password is entered - handy if you have to leave your desk and don't want anyone to tamper with your work.

There's more to Zing! Keys than first meets the eye. For anyone who likes to write their own batch files to configure their system there the programming element will be an enjoyable challenge. Zing! Keys can be used to customise an application for the novice user so that he just has to 'press buttons', or to setup an 'individual' environment. Separate hot key and macro definitions can be saved on any disk, ready for installation.

Meridian's manual is excellent and doesn't hesitate to repeat itself if necessary. There are some nice tutorial style sections.

GrabIt

This is a simple but useful utility. If dumping screens to your printer is important then GrabIt does a good clean job without crashing other software. Brilliantly presented on screen with good clear messages and help windows, GrabIt is polished software but is limited to the anonymous print screen function and 'Anytime' a colour palette utility. The utilities are installed by clicking on the Workbench icons and, once in place, are available by pressing a simple key combination.

GrabIt accesses the Preferences settings and sends the current screen to the printer. Anytime provides familiar slider controls which effect the colour combinations shown on screen. Knowing how much people like to individualise their colour schemes, I

think this will prove a popular feature.

Glimore

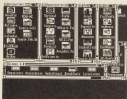
Glimore is a different animal. The single disk contains a vast array of programs and utilities, some more useful than others.

The first thing you do with Glimore is open up all the windows to see what you've got, clicking on icons indiscriminately to see what's 'underneath'. Some fun things pop up, like the cuckoo clock - very to replace the boring Workbench clock - but there are also more rather static and uninteresting windows.

Not impressed? Well, quickly get into the excellent manual and you'll begin to realise that here you have a very workmanlike, even sophisticated, set of productivity tools. The key to the success of this variety of utilities/applications is the way they mesh with the Workbench, their way of working is instantly familiar. The sophistication of Monogod (text), calendar (dates/times) and Rolodex (card index) is minimal to each application and shared by each. That is, text on screen can be cut out of one and pasted into another, a very handy integration of data which saves a lot of time. Panning from all three is dealt with by the Black Book tool, which sets up out-pat of schedulers, cards and labels.

The calendar can remind you of appointments and the Rolodex can dial a number from a telephone field, via a Hayes compatible modem. A bar, column or pie graph can be generated from a script written in Monogod and pasted in Glimore Graph. The resulting picture can be saved as GIF for incorporation into another graphics program. Colours can be chosen and pie segments replotted.

If you are a scientist, then's a



calculator which will work with exponential notation, give you TAN, SIN, COS, square, square root and modulus besides. If calculating anxiety or compound interest is part of your job, there's a financial calculator - great for keeping track of that volatile share portfolio! And if you're a programmer, your calculator will work in binary, octal, decimal and hex; it will shift and rotate on 4, 8, 16, and 32 bit words and performs logical operations. Copy this one straight to your utilities disk. I opened it up while working on a program in another window.

Gemini also contains an array of utilities. FastPack lets you save Preference configurations which can be activated by clicking their icon. A library of configurations is very useful if, like me, you keep swapping printers. Joymouse sets up just two so that you can use a joystick like a mouse. Quickmouse adds an acceleration function to the mouse control software. Announce is an improvement over the Workbench speech demos. It translates English into phonemes too - handy if you're programming with TRANSLATE. Running from CLI, Announce becomes a useful command to take announcements from batchfiles.

Icon Maker turns making an icon into the simple matter of loading an IFF file (rotated, say, in Epstein), sizing it and matching the Workbench colours. Next you choose the icon type, device, disk, drawer, etc, and its highlight (when you click on an icon it can be highlighted in three ways, complement, backfill or a new image entirely). Other status information is easily specified and the icon saved for use.

The Gemini Terminal will get you safely online to a text based bulletin board or service such as Telecom Gold. For file transfer there is Xmodem, Simple Xmodem (but with the original file length) and Amiga binary. There are six terminal simulations and full control over baud rates, parity and so on.

The Gemini Hotkey allows the user to define up to eight hot keys (they press combinations, eg CTRL-ALT-Z) and to assign a keyboard press (including HELP, TAB and RETURN) to the key. This definition is known as a macro.

You may find Gemini's Popups very useful if you are new to the computer. It 'pops up' a card on the screen. Two cards describing Amiga DOS and Microsoft BASIC are available but you can prepare your own cards with MemoPad. There's a string search facility too.

Two, perhaps limited interest, utilities are compress and uncompress. Compress can be genuinely useful for file transfer - as long as the destination has decompress available. Also, in an office environment, encrypt may be a useful discriminator to anyone wanting to peek at your files!

Finally there's a game of Lisk - well-known and to be treated as a hooker on Gemini.

All I can say is 'how did they get it all on one disk?' Some of the utilities are available in different form in the public domain but you can judge their value for your own purposes. After a month's use, I'd now rate the Gemini productivity tools as essential items for the office, or home office, unless you have already invested in full versions of wordprocessors, database and spreadsheet.

Helpmates

It is interesting to note how little overlap there is between the many utilities available for the Amiga. Those reviewed in this article are second string productivity tools. Gemini is highly recommended for those who don't like to learn Workbench. GrabbIt too, is easy to use and does a (limited) job in an uncomplicated manner. Meridian's Zing! and Metacom's Shell, reviewed in former Four Amigos, are more fundamental tools. Shell extends AmigaDOS and is my preference. Zing! puts an alternative and very powerful front end onto AmigaDOS as well as providing screen saves and dumps. There is now an improved manual and Zing! keys dovetail nicely with the earlier product.

Toolshed:

Name: Zing! **Price:** £25.00
Machine: Amiga. **Supplier:** Meridian
Software: Tel: (715) 498 1144
R/S/B:
Originality: 8/10. **Usability:** 8/10
Documentation: 8/10. **Value:** 8/10

Name: GrabbIt. **Price:** £11.99
Machine: Amiga. **Supplier:** Data Electronics, Unit 8/9 Derwents Road, Farnley Industrial Estate, Leeds-on-Tyne. Tel: 0782 273813.
Originality: 8/10. **Usability:** 8/10.
Documentation: 8/10. **Value:** 7/10

Name: Gemini. **Price:** £49.95. **Machine:** Amiga. **Supplier:** Robert Ltd. Tel: 01-447 4437.
Originality: 8/10. **Usability:** 8/10
Documentation: 9/10. **Value:** 8/10



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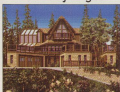


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Amiga Games

Saved up your pennies for a new Amiga game, but have to be selective - then read our comprehensive review pages

Test Drive

Have you ever wanted to drive a Porsche 911 Turbo, or a Ferrari Testarossa, or perhaps just have a quick spin in a little Mark Lotus Expert Turbo? I haven't. I have wanted to drive one very fast down a motorway, safe in the knowledge that I could outrun any police car in the vicinity, or at least be warned in advance by a small radar device (now popular in the States).

So imagine what it's like - in your hand is a disk asking you to test drive one of the five most expensive and prestigious cars there and! Quite a challenge eh?

Test Drive is Accolade's latest offering since Hardball, and like Hardball, these guys really know how to design a loading screen: digitised speech, snappy music - hey, if the loading sequence is anything to go by, then the game looks set to be a stunner.

And what a manner it is! You make a quick selection from the list of five cars (Porsche 911 Turbo, Ferrari Testarossa, Lamborghini Countach, Lotus Turbo Expert and the Chevy Corvette), each machine has its vital statistics on display, you select the one you most like (!) and away you go.

The basic idea of the game is to drive fast - very fast. Of course the police try to stop you, after all racing along at 120mph in a 50mph zone is not their idea of sanity. Initially the game is very simple, just don't go too heavy on the revs counter, just take your machine (mine's the Porsche!) up to 800 revs and drop the clutch, as the back tyres squeal, drop her into second, and so on, until you start to feel yourself lose control of the car and then you slow down.

At higher levels of the game, there are other cars driving in both directions, there are more police, a really meany bumpy road, pits in the road and some rough dips and peaks forcing you to slow down a bit - but don't go too slow or you won't deserve to test drive any of these beautiful cars.



and the big letters GAME OVER will greet you.

The simulation, for what I know of these marvellous cars, is quite accurate, the Testarossa clearly outperforms the Porsche 911, but the Porsche can be driven harder, the Testarossa has less road handling capability than, say, the Lotus Expert, but the Expert, like the Countach, is a little delicate when it comes to pushing the machine into overdrive.

A great game to load up when you don't feel like saving the universe, and a really great game if you happen to like fast cars. If you can, try this game out and see if you like it as people's taste in cars and car racing games are eclectic at best.

C.G.

FileMaker

Name: Test Drive. **Supplier:** Accolade/Electronic Arts, Langley Business Centre, 11-49 Yaxton Road, Langley, Wt. Slough, Bucks SL3 7YN. Tel: 0753 49442. **Machine:** Amiga 502K. **Price:** £29.95. **Originality:** 3/10. **Playability:** 3/10. **Graphics:** 6/10. **Value:** 2/10.

Terramare



THIS IS POSSIBLY THE MOST INFURIATING GAME I HAVE EVER COME ACROSS IN MY LIFE. I have asked the Editor to have this statement in capitals because I have played this game solidly all weekend with very little sleep, hardly any food, I have a pain in my neck and my eyes are slightly bloodshot - and I've enjoyed every minute of it.

Terramare is an amazing game, starting off as a pretty unimpressive puzzling adventure, this game quickly moves on to become one of the best games I have played on the Amiga.

You play one of five national characters, who have been entrusted with the job of finding stolen/lost/scientist Albert Einstein (and with glasses like his - you can see why) who predicted that the world will end by being smothered by a huge rainstorm.

The world laughed at Albert. He went off in a huff proclaiming that the world wasn't fit to be saved.

When the rainstorm was seen just 24 hours away from hitting the Earth, we realised what a silly bunch of people we had been, and therefore enlisted one of our top agents, Peter Krausche, Wilfrat Fortissimo Smythe, Wu-Ping, Big John Gitter or Henry Hainsworth - to find the Proof.

The adventure is actually (to say the least) there are lots of things to pick up (usually your jungle bouncer/sold puzzles to solve). There are clues as to this landscape caused by the Proof, such as rock stacks, Petrified trees, and drops of acid rain - one touch from any of these and you lose a life.

The adventure is massive, with something new on just about every screen. The topic bridges, for instance had me thinking for ages and it became up with a suitably lateral way of crossing it.

When you do meet the Proof, the game doesn't end there, you will have to convince him the world needs saving and persuade him of the things you have found on the way. He is a bit of a grumpy old fellow, saying things like "Make me assemble!" between his calculations.

Terramare is likely to be a long lasting game because parts of the adventure are different when you play different characters. It will keep you interested, not only because of the detailed and colourful graphics, or because of the great music (sometimes never becoming repetitive - now that's a first!) but because the character interacts with you much differently than in any other game. Try and jump off the edge of a cliff without the right item and he will shake his head, try again, and he will sling his shoulders and jump.

This is a great game, infuriating and thought-provoking with the right balance of humour and realism - I haven't seen a game like this on the Amiga yet, go out and buy it, Terramare is addictive and fun.

C.46

Tomb Raider

Name: *Tomb Raider*, Suppliers: *Quantum/MSA, Mercury Games, Leisuretime Play, London* H.C.M. T&R Tel: 07-429 1000, *Hurdine, Amers* Price: £19.95

Originally: *MSA/MSA* Graphics: *MSA* Playability: *MSA* Value: *MSA*

Grid Star



ALOT OF DIFFERENT racing game this one! Amiga have decided to stick to the more chunky approach - big spikes, flash colours, swirling backgrounds and loud, but simple sound effects. You drive a six gear formula one racing car around six different racing tracks: Brands Hatch, Silverstone, Belgium, Mexico, Austria and Germany, each having their own distinctive backgrounds and track characteristics.

Grid Star is a pig of a game to get playing seriously though, you won't reach amateur status (let alone professional) for a few weeks of almost constant play. The secret of Grid Star, like real motor racing, is a question of learning the track off by heart, of knowing your racing car inside out, of knowing where and when to apply the brake, change gear, even position yourself on the road for turning.

The game seems to be heavily modelled on Alan's Pole Position, or the later G&L (without the night race sequences). Dotted around the tracks are the ubiquitous advertising signs to drink called "Enjoy" Amiga's logo and Rush - and the track groups and the balls of stone, which, upon contact, make your car blow up.

Racing against other cars is very difficult, at first - it seems as if there are too many cars on the track, and if you're unlucky enough to crash into a car (or whatever), the chances of regaining your first place are very slim indeed. Most of the cars speed past you, and you are destined to 24th position - but that's life in the fast lane I suppose.

For all its chunkiness and basic (sometimes sparse) backgrounds, this is an excellent game. Amiga have sensibly priced it - clearly making it one of the best value-for-money budget releases I have yet seen on the Amiga. C.44

Tomb Raider

Name: *Grid Star*, Suppliers: *Amiga Software Ltd, 1911-1913 Hill, Darnley, Kent* Tel: 0472 92511, *Hurdine, Amers* Price: £9.95

Originally: *MSA/MSA* Graphics: *MSA* Playability: *MSA* Value: *MSA*

Eagles Nest

The Eagles Nest is a strategically positioned garrison fortress, believed to be a central command for an immense enemy counter-offensive, which apparently poses a major threat to the continuation of "our" advance, and must therefore be eliminated before the final offensive can begin.

So the battle gets on. This is basically a thirdly rolled game to kill, kill and kill some more.

You play a character who can withstand 50 shots, and you can only carry 99 bullets on you, but the Eagles Nest has plenty of ammo-dotted around the four floors with which to fill your automatic rifle and happily kill a few more Communies, Greeks - or whatever.

Not having seen the C64 or the CPC versions of this game released earlier, I must admit I wasn't overly impressed by the programming or the graphics on this one. It is a sort of World War II version of "Command", the basic premise being to explore as many rooms as possible, shoot anyone who gets in the way and eat food or take medicine as and when necessary.



The sound effects, although realistic, seem somewhat weird, even turning the Amiga's monitor volume control up. It doesn't help matters - a shame as there could be plenty of scope for improvements (footsteps, screams, other bullets firing at you and the odd cry as an enemy bites the dust).

To make things easier, there is a supplied map-of-the-ground floor; this is very useful should you want to start learning how to play the game.

You have to be pretty quick to play this game properly. If you don't watch your ammo, you could end up being overrun by a load of soldiers without any bullets with which to mow them down, or to shoot again a wicked door.

Eagles Nest is most certainly a playable game, a little crass at times, and the puzzles aren't really as demanding as with other games, but until Commander is released for the Amiga, it will do. **C.G.**

Troubleshooter:

Name: *Eagles Nest*, Supplier: *Panorama/Interceptor/Mercury/Mercury House, Culture Park and Exotic, Alder Manor, Brix, Tel 03358 3711. Machine: Amiga 500. Price: £39.99. Originator: 8/18. Playability: 8/10. Graphics: 8/10. Value: 8/10.*

The Hunt for Red October



The Red October is a new submarine design so quiet, with a revolutionary new drive system that makes it almost undetectable to the submarine's age old enemy - sonar.

You play one of the most senior Russian Submarine commanders, ordered to test the latest in Soviet death-mongering hard ware. But surprise, as it were, you decide to defect. Your officers are willing to risk their lives to join you while the enlisted crew members expect nothing.

After killing the KGB-assigned political officer on board your ship (the one man who could blow your cover), you set off, under completely false orders to reach the West. Starting at Reykjanes Ridge, you have to slip out undetected by moving very slowly among the rock formations...

This starts the latest in simulations and "strategic" games programmed by Oxford Digital Enterprises and with the Amiga, they really have had a ball game, using full colour graphics, in lot of which is digitised, some sparse, but effective sound effects, and mouse control throughout.

Red October isn't a particularly action packed game. Being a more subtle version of "Cat and Mouse", you have to avoid detection by all sides until you reach a safe port of call (it's either that, or you crash off some country's coastline).

If you are detected by the Americans, they will help you throughout. Russia will, of course, want to blow you out of the water for defecting with their submarine! The English are there too, but their actions are not as clearly defined as the US or USSR ships, although they tend to be a lot faster at manoeuvring.

The game is controlled completely by the mouse, pointing to each respective icon for each member of the crew. The main control panel basically informs you of the ship's direction, the depth and speed of the ship. You can use the compass to change course.

The senior officer represents the "eyes and ears" of the submarine, while underwater. This has its disadvantages, such as requiring a visual sighting before taking any action (sonar traces are highly subjective and using sonar can also leave vulnerable blind spots which can be exploited by hostile attack submarines).

There are plenty of other options - all of which have something to do with the running of Red October, your job is to plan ahead as far as you can, take deliberate action (at first) but strategically plan offensive tactics should you find yourself in a tight spot.

Red October is a good game for thinkers. There is plenty of visual information, and the supplied maps and notes are essential reading. Another nice touch is the newspaper

headline at each end of the game, you will get one should you successfully check Red October in the West, but not all countries are willing to accept a state of the art submarine (with a nuclear capability) and they will do their best to lend you off.

Lots of features, lots of options and lots of colourful graphics, all you need is lots of time. **C.G.**

Timeline:

Name: *The Hunt for Red October*. **Supplier:** Amiga Press Software, Victory House, Ladbroke Place, London, WC2A 1NH. **Tel:** 01-429 1001. **Machine:** Amiga. **Price:** £14.95. **Originality:** 8/10. **Graphics:** 8/10. **Playability:** 7/10. **Value:** 10/10.

Western Games

Now, this is a novelty! If you want to learn how the wild west was really won, then this game is for you. No shooting lions here, just good wholesome family entertainment such as spitting, shooting bear glasses (using the village idiots as target bearers), eating as much food as you can (but you have to keep it all down) and arm wrestling.

The games on this double disk package are bright, vibrant and very, very silly. Instead of going for realism the programmers of this little gem have decided to make it look like a cartoon or a comic strip and their attention to detail has made what is one of the most graphically inviting games around for any machine on the market.

This is, I think the first wholly German program I have seen for the Amiga, released by a software house called Magic Bytes: it is an original game, a bit like the "Olympics" games currently available for the Amiga, but on a more down to earth level.

You will need a joystick to play this one, and it will get some pretty heavy bashing, as it is one of those games that requires fast pushing and pulling on the stick in order to control your character on the screen.

The first game you play is the hairy spitting competition. (Yes! I said, good clean wholesome stuff). You chew as much hairy as you can without swallowing, you select the force at which you want to chew, select the angle of the spit and simply spit away!

Likewise, the bear shooting competition is similar, you first draw your gun, and roughly aim the cross over your

target (shooting from glasses, hot fires, legs and so on...), you select the right moment to fire and then shoot.

All of the competitions are very difficult to play to begin with, but after a while, you pick up on the rhythm of the game, and after that, it is plain sailing!

A very nice series of games to look at - and great fun to play, especially with a second player as your opponent. Definitely one to bring out at a party! **C.G.**

Timeline:

Name: *Western Games*. **Supplier:** AmigaSoft, 9 Ditchford Road, Pinner, London HA5 1J. **Tel:** 01-883 4265. **Machine:** Amiga. **Price:** £19.95. **Originality:** 5/10. **Graphics:** 8/10. **Playability:** 7/10. **Value:** 7/10.

Q Ball



English Software have recently converted and upgraded the Atari ST version of this game for the Amiga. It is a sort of 3D zero-gravity game of snooker with mouse control and full colour graphics.

The problem is that while Q Ball is very easy to learn, the game is right irresponsible to play and control properly.

I have tried this game out with many different friends (most of whom already have STs of Amigas) and none of them could control the ball properly - even after a month's full playing. So in the end we switched ourselves with randomly aiming the ball and hitting the cue as hard as we can (more logical attempts proving fruitless).

The graphics looks nice, the sound effects are very nice and the music is good (when it lasts) but other than that, Q Ball is best left to lesser machines such as the Atari ST - it is not worth playing because there isn't a game here. **C.G.**

Timeline:

Name: *Q Ball*. **Supplier:** English Software, North Parade, Pinner, London HA5 1J. **Tel:** 01-883 4265. **Machine:** Amiga. **Price:** £19.95. **Originality:** 8/10. **Graphics:** 8/10. **Playability:** 1/10. **Value:** 2/10.



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Superbase Professional

Superbase fulfills its promise with the addition of a forms designer and programming language

By Anne Owen



Superbase is instantly recognizable by the VCR-style controls (an idea now "borrowed" by other database programs) has been evolving ever at Precision in Sunny, into Superbase Professional.

The new software tidies up some of the old and features new elements such as a text and forms editor. The most important addition however is that of a programming language for Superbase. The designers have not come up with some exotic database language for us to learn but have sensibly made the familiar structures and keywords of Basic available for Superbase programming.

It's worth reminding ourselves of one of the unique features of

Superbase, all of which are now programmable. A database file can have an external file linked to it which can contain text, screen pictures or music data. The pictures can form a slideshow or can be dumped to a printer; the music can be played back as a tempo programmed from Superbase. The equivalent program keywords are SHOW and SCR-DUMP.

Superbase supports the Amiga's speech facilities and the program language provides the keywords SAY and SPCG followed by the parameters for pitch, inflection etc.

Superbase files can cross-reference with other files. For instance a holiday record file might have fields common

to a firm's personnel file with holiday entitlements in it. In this way updating on the personnel file also affects the variables in the holiday file itself. Some relevant program keywords are CREATE and INDEX.

Superbase strives to allow English language style expressions where possible, e.g. the relative concepts of time TODAY and NOW and LIKE using matching functions, all available via the programming language.

Superbase Basic

When the program option is selected, an edit window opens, just like Amiga Microsoft Basic. A program menu is available with Run, New, Edit, Open,

Close, Save, Print and Remove options. You can move into the database window at any time, or open a command line window for directly typing in program commands.

The program editor has many of the features of the text editor including delete word, delete to end of line, clear line, split line, join line, insert mode on/off and undo, making programs writing a pleasant task.

Familiar (to Basic users) keywords are ABS, ASC, ATN, CHR\$, COS, DATA, DIM, INT, LEN, RND, CLS, INSTR, LEFT\$, LIST, LOG, MID\$, MOD, NEW, READ, REM, RESTORE, RIGHT\$, RND, RUN (from memory or disk), SGN, SIN, SQR, STR\$, TAN and VAL.

As with many keywords, LOAD and SAVE can be used with parameters to give them wider use

DOS command from disk for execution before returning control to the program. DISKSPACE is also useful when files are filling up fast. EOF detects the end of a Superbase file.

Superbase deals comprehensively with time. Indeed there seems to be a strange preponderance of time based keywords: DATE\$, DAY\$, DATE\$, TIME\$, HRS\$, MINS\$, ISATERASE\$, TIMES\$, THOUSDCS\$, TIMEVAL\$, TODAY\$, NOW\$, YEAR\$, MONTH\$, MONTHS\$, SECS\$. All are available to define the day and time format and to express or assign the required moment, down to milliseconds!

String handling is a vital part of database work, carried out in Superbase by the following keyword commands: PCASE\$, LCASE\$, LTRIM\$, UCASE\$, TRIM\$, and

and similarly in the position of a programmer/consultant creating an easy to use system which inexperienced operators could use efficiently.

Forms

For the format the Forms editor is the first port of call. Forms have the advantage that they present information on screen or on paper in a manner designed by the Superbase user. Specified information from a combination of files can be displayed clearly and attractively.

Forms are designed page by page, a printed page, not a screen full, and each form consists of three pages. Pages can be saved and reloaded, and their positions within the forms swapped about in memory.



than normal in Basic. They can deal with a tabulated program, with text, with a query file, an update file or function key definitions and can add one file to another.

CHAIN loads a new program but retains variable information. CLEAR and ERASE clear variables while SET interprets variable settings and commands from a disk file. EREND, ERERR, ON ERROR and RESUME help with error tracing and FREE gives a memory free figure.

The main control statements are FOR TO NEXT, IF THEN ELSE and WHILE WEND. There are no line numbers but you can GOTO or GOSUB to a label and (of course) RETURN to the main flow of the program. ON GOTO and ON GOSUB are also available.

DOS like commands COPY, DELETE, DIRECTORY, ERASE and SET BUFFER are available from within a program. CALL calls up any

SOURCE. Number precision can be set with FIX.

The current position is read by COL and ROW and is assigned by LOCATE and HOME. NEWLINE moves to the next line, REPLICATE reproduces a character a specified number of times and SET PAGING controls the page scrolling while WAIT does just that. Bold, underline, and italic text can be easily turned on and off.

PRINT selects the printer as the output device. PAGE and PROW detect the printhead position and EJECT can be used to ensure sensible page breaks for printed output.

Take Two Users

I put myself initially in the position of a user filling up forms for presentation on screen and paper, including mail merging and reports

The sort of thing you might do is to print a two page form to an ordinary dot matrix printer a page at a time and then match them up for an A3 photocopier. If you can shoot find your printer then an A4 form design can be printed once, photocopied many times and the resulting forms put through the printer to have individual details filled in.

Calculated fields, which change dynamically, can be added to the form. They are attached only to the form, not to the file. The report functions SUM, SD, MEAN, MAX, MIN and VAL are available.

Any of the files supplying information to the forms can be made the master file and new selection criteria applied to the records.

The form can appear in 4, 8 or 16 colours and the design itself is carried out with the aid of the following 'object': areas (solid and patterned fill), boxes, lines, images (loaded from

other point programs), text and fields (supplied by the data files). The 'object' is placed on the form in the desired position and can be moved, copied, edited or deleted. An invisible grid can be turned on to help alignment of objects and a 'redlined' preview of the complete form can be displayed. Field objects can have justification adjusted, can be set as 'read only' and can be automatically given a border and/or the field name before the data.

Printing of the form can be in text or graphics modes. Each object can have a value assigned to it which indicates whether it is to appear on a printout or not. Some design features (especially colours) may look excellent on screen but confusing on paper.

Function Keys and Automatic Reports

For performing repetitive but limited actions on the data the user needn't go as far as writing a program. Function keys can be used very effectively. Commands can be assigned to the function keys and associated with a single key press. For instance loading a letter into the text editor and extracting a couple of names and address fields for merging and printing. KEY displays all the current definitions, which can be loaded and used as required. Programming function keys with often used strings also helps with data entry. The text editor has a complete set of menus of its own and is capable of *RTM* documents. A format ruler can be placed at any point in the text. The *vis* help on key presses and the mailmerge simply involves inserting field names in the text between the & character (Wordstar style).

Another boon to this user is the automatic generation of reports without the need for programming. The reports are designed on screen with the forms editor. On saving, the editor automatically creates a report file and an associated Superbase program file which will reproduce the report on screen or printer, including title page and totals page if required.

Programming

Because the command language matches closely the menu options in Superbase, any regular user can turn to hand to programming and quickly get a feel for the actions which will

result from a program. The professional programmer can go a step further to automate data processing or design an interface suitable for a particular Superbase application.

It is possible to create files from scratch within a program via **CREATE**, **ADD**, **MAKE** and **INDEX**. There are also the corresponding **QUIT**, **REMOVE** **FILE** and **REMOVE** **INDEX**. Files can be saved with **PROTECT** and, for further security, a password added with **PASSWORD**.

Report creation involves the use of **BLANK**, **ENTER** and **STORE** keywords. Field values can come from the user with **EDIT** (whole records) or **ASK** (specific input) or values assigned directly from **DATA** in the program or **INPUT** from disk files. **POINTER** can be used to control the pointer in an **ASCII** file when extracting data.

REQUEST is a vital command which brings up one of the variety of existing Superbase dialog boxes. You can manipulate menus with **MENU** **ON** and **CLEAR** (cancel). Presentation as record, table or form can be set and records selected with **SELECT** - **CURRENT**, **Duplicate**, **FIRST**, **KEY** (with string parameter), **LAST**, **NEXT**, **PREVIOUS** and **REMOVE**. A path can be set to a validation file (which checks data entry) and suitable error messages issued. Data entry can also be forced if necessary.

WHERE sets a filter on the fields selected (by **SELECT**) for report output or for other query applications, such as sorting, merging files or simply retrieving data. Sorting is carried out by **SELECT**ing the fields upon which to sort and **ORDERING** them, either **ASCENDING** or **DESCENDING**.

Forms, reports and mail merging can all be handled from within a program. Both function key definitions and programs can be loaded automatically by creating a program file called **START**, which Superbase will load and execute on startup, allowing a 'turnkey' system to be easily implemented.

Conclusions

A journalist colleague recently remarked that the potential of the Amiga hadn't been realised. True, but Superbase is one of a new generation of software now realising it. The mixture (graphics, page design, fonts, speech and music) is combined with

the practical power of a relational database. The one limitation you are probably already aware of is your printer. The appearance of forms on screen is often much better than on a graphics dump. The Amiga does not have special font libraries to accurately reproduce these, even on a laser printer.

The designers of Superbase haven't made any assumptions about what the business user will want from the database. After all, these days the business computer is more than likely used in the engineering of science departments as much as in administration. A scientist will appreciate the precision of numbers and the accurate dates, even including changes to the calendar in 1932.

Superbase, like all good software, creates its own working environment. The new features of Superbase professional allow the powerful features to be extended or fit the environment to be restricted for a particular category of use or user.

The first Amiga interface shines through but I must mention, as I have with all the disk based software, that the performance of the Amiga floppy disk drives inevitably slows down the movement between some operations. Users who have Superbase up and running daily would benefit, indeed profit, from a hard disk (they start from 1994 from Precision).

When Superbase was demonstrated to me on a 512K Atari, the program very quickly ran into memory problems. These were instantly cured by the fitting of a Precision megaboard 2 from Progressive Peripherals. I suggest, if you are working with 512K, that you discuss this with Precision before purchase.

The documentation is of a high standard, one manual for Superbase, another for the new Superbase professional features. Although there are general purpose manuals, Amiga users can easily avoid the material about Superbase on Atari and MSDOS, though it is obvious that many Amiga features such as speech and external music files are missing from the inferior versions!

Upgrade prices will be available and registered users will be mailed by Precision.

Conclusion

Precision Software, 8 Park Terrace, Winchester Park, Surrey, KT1 1EG. Tel 01-328 7768.

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1) If possible all material sent to the magazine should be typed or printed out on a computer printer.

2) All text should be double spaced i.e. there should be a blank line between each line of text. You should also leave a margin of about 10 characters around the text.

3) On the very first page you should put the following:

Name of the article
Machine that it is for
Any extras required - disk, printer etc.
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4) The top of every page should have the following information on it:
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The page number

For example, suppose you had submitted an article on C64 interrupts. You should put something like the following at the head of the page:

Interrupts/J.Smith/1

5) Please make sure that you do not make any additional marks on your text especially underlining.

6) Try and write in clear concise English, it does not have to be a work of literature but it must be comprehensible.

7) On the bottom of each page you should put the word MORE if there are more pages to the article or ENDS if it is the last page.

8) If possible, enclose a listing of all programs.

9) Under no circumstances are a staple to hold the pages together. Use a paperclip instead.

10) Programs should be included on either disk or tape. Make sure that you SAVE two copies of every program so that we have a better chance of loading them if problems occur.

11) Programs under 10 lines can be included in the text. If your program is longer than this you must enclose a disk or cassette.

12) If your article needs any artwork then supply clear examples of what is needed. We don't expect you to be an artist but we do need to see what is required.

13) Photographs, if necessary, must be either black and white prints or colour slides. We can take shots ourselves so don't worry about this too much.

14) Submissions of any length are welcome. If you have a fixed line routine that you think may be of use to someone else we welcome it just as much as a full blown six part series.

15) Payment varies quite a lot and depends on quite a number of factors, such as complexity of program, presentation of program, number of magazine pages it takes up etc. Payment is generally between £10.00 and £250.00.

16) All payments are made in the month that the magazine containing your article has appeared in print.

17) If we do find your submission suitable for inclusion in the magazine we will write to you giving the terms of publication, the rate of payment and an agreement form. Prompt return of this form will allow us to use your program as soon as possible.

18) If you want the program returning to you, should we find it unsuitable for publication, then you should enclose a stamped self addressed envelope.

19) The last and most important point to make is 'get writing', we are waiting for your articles.

I.Q.

Strain your brain with the recent intellectual releases



Knightmare

Welcome watchers of *Blatney*, to the castle of confusion... If you recognise these opening words then you're already one of the dedicated followers of ITV's cult teleplaying TV game *Knightmare*, in which teams of advisors guide a knight, blinded by a full facial helmet, around a computer generated graphic dungeon. The graphics in the TV program were created by two Supermicro computers which are slightly more powerful than your average C64 so this is obviously going to be a cut above version from Activision.

You play the knight who must find his way out of the *Knightmare* by solving his problems and overcoming the monsters and go to the second wilderness section. To help you in your quest you can seek advice from two Oracles. However, one is good and the other is evil so you should listen to both bits of advice but follow none to find the successful middle path. You will also hear from Treguard,

the Dungeonmaster whenever you waste time or attempt pointless actions or anything else that annoys him.

Your quest is told in 3D graphics which is displayed on the turning pages of a book alongside a burning candle which represents your lifeforce. As monsters hit you, and poison and traps take their toll, the level of the candle will plummet to end your game.

You control the Knight's movements with a joystick and his actions with adventure style commands selected from menus or by pressing the first letter of the command, object, person or verb. This may seem an efficient method - however it can cause you problems as it takes a long time to throw a rock while a ghost and a demon clump at your heels.

Unfortunately, the game also suffers from a few annoying bugs such as if you throw a rock in one room and then enter the other, the same rock comes flying across to meet you! To add to this the graphics are crude and the

action is far from the combination of traditional adventuring and arcade action promised on the packaging.

There is no way a C64 can mimic the efforts of two Supernovas and five actors but surely it can come close; that is, perhaps the approach used in *Dragon's Lair* and *Escape from Singe's Castle* would have been better. Disappointing I'm afraid.

T.H.

Touchline

Title: *Touchline*. **Supplier:** *Activision, 25 Pond Street, Hemel Hempstead, Herts. SG9 5JL, Tel: 01-491 1151.*

Machine: C64. **Price:** £9.99 (C) £14.99 (R).

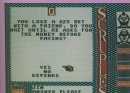
Originality: 6/10. **Playability:** 4/10. **Graphics:** 3/10. **Value:** 5/10.

Scraples

This is a computer version of the best-selling board game which is best described as a sort of thinking man's Trivial Pursuit.

The game poses a series of moral dilemmas to each player in turn. It is up to you whether you decide to answer truthfully as life is your way out of things but you are always likely to be challenged in which case you will have to justify your answer. The other players will then vote as to whether they believe you or the challenger.

A typical question would be, "If you saw your boss coming out of a cinema that showed exclusively blue movies, would you tell your colleagues at work?" Personally, I would only bother if I recognised him appearing in one of the blue movies!



Between three and ten players, either human or computer, can take part in a game. Setting up the game is somewhat tedious as you must select from sixty-four different traits for each computer player and define personality traits for the humans. This involves defining on a chart how you see yourself for each of twelve different characteristics. These range from personal integrity via greed to family relationships. The computer then adjusts your inputs slightly and presents you with a new graph at the

end of the game according to how you answered the questions.

The game itself depends on getting rid of your dilemma cards before anyone else does. You have an answer card (yes, no or depends) which is kept secret from the other players and the trick is to ask questions which will force players to give the same answer as you have on your card.

The problem with the game is that to get the best out of it, you need to be watching the other players and judging their reactions. Against computer opponents, this is obviously impossible. Again, with human opponents, making them look away as you examine your answer card destroys the atmosphere of the game. The conviction of the game is excellent, even explains there. I just think that this is the wrong sort of game to be concerned in the first place. Whereas it works well with a group of you sitting round a table, it fails miserably when you all move to the small screen.

G.R.H.

Touchline

Title: *A Question of Scraples*. **Supplier:** *Leisure Games/Virgin, 2-4 Roman Road, Parade Road, London W11 2SS, Tel: 01-277 8878.*

Machine: C64. **Price:** £12.99 (C) £14.99 (R).

Originality: 6/10. **Graphics:** 6/10. **Playability:** 5/10. **Value:** 5/10.

Not a Penny More, Not a Penny Less



It was rarely only a matter of time before Jeffrey Archer found his way somewhere into the computer world. After all, his list of appearances in recent years has been considerable – television, books, the stage, political rallies and the High Court. Domark have afforded the ink up and produced a games based on Archer's first book, *Not a Penny More, Not a Penny Less*.

The book, like most first novels tends to be semi-autobiographical. Few totally unconnected people are persuaded to sink their life savings into shares in an oil company. There is the promise of enormous profits but the deal turns out to be one large con trick and the partners lose one million dollars between them (early 1970s prices).

You play one of the four, Stephen Bradley, and it is up to you to contact the other three and persuade them that you ought to try and get back all the money that you were swindled out of. Hence the title of the game.

That is the gist of the story and a very good one; it is neither whether you like Jeffrey Archer or not, he does tell an excellent tale even if his literary powers do not feature among the world's greatest.

The game itself is a different matter and I am afraid that it takes the art of adventuring back into the dark ages. The list of problems and bugs is phenomenal and I can do no more than mention some of the ones that occur at the start of the game.

The game is pathetic. Even by the standards of games written five years ago, it is dire. There is no inventory command so that if you pick something up, there is no way you can find out what you are holding at a later stage of the game. Directions have to be typed out in full, e.g. 'go north east' rather than just 'NE'. Not that you can move anywhere anyway. At least not until you have solved certain puzzles. The game is so badly linear and inconsistent that everything must be done in an exact order. Can it wrong and it is effectively game over although you are not told that at the time.

Although many items are described in the location descriptions, trying to examine them further is by and large a waste of time. In some cases they disappear totally. For example, you start off in your room in college (you are a university lecturer). In the room is a bookcase and a cupboard. At least there are until a policeman arrives and catches you with an incriminating dossier open. Then they disappear. If however you manage to close the dossier before the policeman arrives, after he is gone, re-examination reveals a vital phone number that you managed to miss the first time around.

Still the bugs haven't finished. Phoning Scotland Yard gets you through to your stockbroker (perhaps this is an intentional dig at BT). Examining the top names in the dossier gives you a description of your rooms again. I managed to go and see this first character, a doctor, on three occasions within one game, each time following exactly the same sequence of events because no flag had been set to instruct the program only to allow things happening once.

There are graphics but they are of the first variety complete with a fill routine that takes ages to complete. The program also boasts an impressive speech routine but there is so much time that it sounds like a badly timed radio station. Pronunciation isn't all that it might be either. Magdalene College is pronounced a mag-da-lin instead of madelin.

Perceptive readers will notice that I was not too impressed with this game. In fact, I would go so far as to say that this is the worst full priced adventure I have played for several years. The package includes a copy of the book which is necessary to find out what you are supposed to be doing. My advice is to go and buy the book and ignore the game, especially at just under fifteen pounds for a cassette version.

G.R.H.

Finalists

File: Not a Penny More, Not a Penny Less. **Supplier:** Demand, Barnack House, 22 Hayfield Road, Wickenburg, Leamington Spa. **File:** 01-804 5508. **Machine:** C64. **Price:** £14.99 (C) 1988 (1988).

Eye

Another computer version of a board game and one that is almost impossible to describe if you haven't seen it before.

The playing area is a circle with four squares of eight different colours showing at any one time. The position of these squares is altered by rotating two spirals within the circle. The object of the game is to place the requisite number of your own pieces on your own colour before your opponents manage the same feat. How many pieces you need is determined by the number of players.

You have a number of moves determined by the highest number of pieces you have on any one colour. A move can consist of sliding one of your own pieces to an adjacent square or twisting one of the two spirals to change the pattern of the colours either with the object of hindering one of your opponents or helping yourself. If that wasn't complicated enough, you can also control neutral colours and at the beginning of each turn, you can move any of your opponent's pieces that happen to be lying on a colour you control.

Although it all sounds very complicated, you soon get the hang of what's going on and the game becomes quite addictive. One advantage of the computer version is that there are several game variations that are not possible in the board game but again that is one of the most enjoyable parts of the board game is moving the spiral and watching the colours change. In the computer version, this effect is lost as the screen blanks out and redraws with the new pattern.

Eye is the sort of board game that converts well to the computer and fans of strategy games like this who are in constant mood of someone else to play against will not be disappointed. Two minor quibbles. The printed instructions are somewhat sparse and could usefully have been expanded and also there is a silly grammatical error when you are writing up the game (whose instead of who's). I know it's trivial but it does have the effect of making the finished product look unprofessional.

G.R.H.



Finalists

File: Eye. **Supplier:** Endeavour Games, Prime Leisure Corporation, Unit 1, Royal Road, Jafford, Middlesbrough. **File:** 01-804 5508. **Machine:** C64. **Price:** £14.95. **Originality:** 9/10. **Graphics:** 5/10. **Playability:** 5/10. **Value:** 7/10.



Welcome Back

*It's good value for money all the way with
our handy compilation of re-released
budget games.*

By Tony Heberington

When you go into a shop to buy a game you're usually greeted with a bewildering array of titles, some of which are treasures, others are wastes. For full-priced games the answer is simply to read through *Time Computer's* review pages and then go out and buy with confidence. Even budget games have the same pitfalls as £1.99 for a bad game is good money wasted. However, if you look carefully you can usually pick up a bargain as you can find games that were top of the full-priced games enjoying a cut-price comeback. Here are ten to look out for if you want to bag a bargain.

Football Manager

Football Manager has got to be one of the most successful games ever. Launched in 1982 on the Spectrum and converted later for the C64 and C16 this game captures the pressures of football management and presents them in a ridiculously addictive form. Although the game was written in Basic the small pace action didn't deter it's players staying up all night to play just one more season! I don't think my neighbours will ever recover from the time I won the league and cup double!

The good news is that Addictive Games is adding the finishing touches to Football Manager II, and even better news is that you can pick up a copy of the original from Prime Leisure for only £2.99.

Touchline:

Title: Football Manager. **Supplier:** Prime Leisure Corporation, Unit 1, Royal Ad, Exford, Middlesbrough, E/N 15S. **Machine:** C64. **Price:** £2.99. **Originality:** 7/10. **Playability:** 10/10. **Graphics:** 4/10. **Value:** 10/10.

Decathlon

One of the first, and in my opinion, the best of the decathlon games has been re-released as part of the Firebird (£1.99 range). Both you and your joystick must endure a punishing schedule of events that includes the 100m, 110m hurdles, long jump, high jump, pole vault and the exhausting 1500 metres. The key to success is joystick wiggling so make sure you have a stick that can stand the pace before you attempt to go for gold.

Touchline:

Title: Decathlon. **Supplier:** Firebird, 44/78 New Oxford Street, London WC1A 1PS. Tel: 01-479 8755. **Machine:** C64. **Price:** £1.99.

Originality: 7/10. **Playability:** 10/10. **Graphics:** 6/10. **Value:** 10/10.

Boulderdash

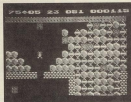
Boulderdash is one of my all time favourite arcade games and has everything that an arcade game should. It's simple to learn, horribly addictive, presents you with levelish puzzles that you must solve in a race against the clock and it drives me mad!

The star of the game is Boulder, a little character that must collect diamonds while avoiding crushing boulders and deadly snakes, ferries and dragonflies.

Boulderdash was originally written by Prime Star and imported by Beyond and now is back for a well-deserved encore courtesy of Prime Leisure.

Touchline:

Title: Boulderdash. **Supplier:** Prime Leisure Corporation, Unit 1, Royal Ad, Exford, Middlesbrough, E/N 15S. **Machine:** C64. **Price:** £2.99. **Originality:** 8/10. **Playability:** 10/10. **Graphics:** 8/10. **Value:** 10/10.



Attack of the Mutant caneh

The first and best bout of Mutant caneh in 90! Just genetically altered canehs are sent to destroy the world. Armed with a short supply of high speed laser jets you must take on the massive beasts as they march relentlessly across

the scorching burnings.

Unfortunatly, genetically altered canals are formidable beasts and are coated in many layers of armour, which you must blast away while avoiding the acid bolts that the hairy horrors spit at you. Clear the screen and you'll live to face another batch of conquering canals.

Touchline

Title: *Attack of the Mutant Canals*. **Supplier:** Mamelectronix, 4-19 Paul Street, London EC2A 4BH. Tel: 01-377 6880. **Machine:** C64. **Price:** £7.99. **Originality:** 8/10. **Playability:** 9/10. **Graphics:** 3/10. **Value:** 10/10.



Pitfall

Another Activision game to be re-released by Irbird, Pitfall is one of the few computer games that has been converted and which now appear in the arcades. In the game you play Pitfall Harry, adventurer, treasure hunter and explorer as you make your way through the impenetrable jungle and a subterranean maze that lies below.

As you'll soon find out, treasure hunting isn't all that easy as you'll have to leap over barrels, swing on vines over lakes, trap crocodile pits by jumping on their heads and time your run across the jungle as you're not swallowed up by snakes that come and go. Be warned - this game may look simple but it isn't.



Touchline

Title: *Pitfall*. **Supplier:** Irbird, 44/76 New Oxford Street, London WC1A 1PS. Tel: 01-376-6755. **Machine:** C64. **Price:** £7.99. **Originality:** 6/10. **Playability:** 8/10. **Graphics:** 4/10. **Value:** 10/10.

Fight Night

The new look, Mamelectronix owned, Americana range boasts and impressive line up including this one for Fight Night.

Fight Night allows you to build your own boxer right down to the colour of his shorts and then prepare him for the ring through a tough training and sparring program before tackling the opponents that stand between you and the title. Don't let appearances deceive you as what looks like an easy opponent can have a killer blow.

Treat Dip Stick with more respect than what you think he deserves as his speciality can ruin more than your career.

Touchline

Title: *Fight Night*. **Supplier:** Americana, 8-10 Paul Street, London EC2A 4BH. Tel: 01-377 6888. **Machine:** C64. **Price:** £7.99. **Originality:** 6/10. **Playability:** 8/10. **Graphics:** 8/10. **Value:** 10/10.



International Karate

Players who prefer to use bare hands and feet to beat their opponents in a pulp will enjoy System 3's International Karate now re-released by Prism Leisure.

The game takes you around the world from New York to Sydney and on to London and the base of Mount Fuji as you lay into a human or computer controlled opponent with your stolen Kung Fu moves. Win two out of three Round Robin bouts, you could be on your way to a black belt.

Touchline

Title: *International Karate*. **Supplier:** Prism Leisure Corporation, Unit 1, Broad Rd, Epsom Middlesex, TW20 1DF. **Machine:** C64. **Price:** £2.98.

Originality: 4/10 **Playability:** 5/10 **Graphics:** 6/10 **Value:** 10/10



Forbidden Forest

Take a deep breath and a firm hold of your nerves and dive into this atmospheric nightmare. Armed with only a bow and arrow you enter the forbidden forest to find and defeat the Demogorgon. Through day and night you must fight for your life as a stream of giant spiders, monstrous bees, killer skeletons, mummy frogs, a fire breathing dragon and the Demogorgon himself attack you and aim to bring you to a halcyon and blood-thirsty end.

Forbidden Forest may look a little dated but for £1.99 it's worth a look.

Touchline:

Title: Forbidden Forest. **Supplier:** Top Ten. **Machine:** C64. **Price:** £1.99.

Originality: 4/10 **Playability:** 7/10 **Graphics:** 4/10 **Value:** 9/10.



Crazy Cars

The old classic Mad Planets arrived on the C64 through Marmot's Crazy Cars and is back again as part of Marmot's Rascals range. Your job is to destroy the

evil planets that are being formed and then are spinning out of control. The action is fast and furious and accompanied by a Rob Hubbard soundtrack.

Touchline:

Title: Crazy Cars. **Supplier:** Marmot. 0-18 Ford Street, London E1 2JF. **Tab:** 01-277 6000. **Machine:** C64. **Price:** £1.99.

Originality: 4/10 **Playability:** 9/10 **Graphics:** 8/10 **Value:** 10/10.



Future Knight

This former Grapple Game was a challenging mixture of platform, puzzle and arcade skill as you steer a shielded spaceship packed full of evil robots and poisonous pochs of your beloved master in distress. Twenty levels of tactical hidden and scrolling action await the futuristic knight in shining armour.

Touchline:

Title: Future Knight. **Supplier:** Proton Leisure Corporation, Unit 7, Round Rd, Enfield, Middlesex, EN1 7SL. **Machine:** C64. **Price:** £1.99.

Originality: 4/10 **Playability:** 7/10 **Graphics:** 7/10 **Value:** 10/10.



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Sysres

Add hundreds of new functions to BASIC while using only 33 new command words

By Allen Webb

Reviewing this package gave me a deep feeling of nostalgia in that it took me back to the good old CBM PET days. After the initial Palo Alto-HELP chips, there emerged a number of enhanced tool kit packages; the most notable of these being the POWER chip and VICTREE. Certainly there were a number of similar British products but these were local efforts compared to the American packages. SYSRES demonstrates that things haven't changed and is the C64 equivalent to the excellent POWER package for the PET.

Enough of the spiel, what's SYSRES all about? Basically it is a toolkit to allow the easy manipulation of disk commands, programs and files.

First we have extensions to the disk operating system. These are commands which replace the extremely tedious way of accessing the disk.

OPEN "1,2,15,"....."CLOSE 15

These allow you to copy files, search files, call the directory, etc by use of simple commands such as **OPEN** and **CLOSE**, so that's fairly standard. One rather nice command is the list from disk (all). This allows you to display a file direct from disk without loading any programs in memory. The command handles sequential, relative and program files. If you think about it, this is a very handy facility with a wide range of uses.

The remainder of the package comprises about 30 other commands. These range from the usual **RENUMBER**, **AUTO** and **DELETE** commands through enhancements to **RUN**, **LIST** and **CMD** to the positively phenomenal **CHANGE**. Before describing some of these commands, it is worth making some points about the

author's approach to the design of the package.

First of all, this package can be considered to be a true operating system. A range of enhancements such as bidirectional scrolling, key repeat, redefinition of all keys and default devices are wedged into the system. Having done this, the system recognizes if you run a program and disconnects and reconnects functions to ensure that optimum speed is achieved.

Secondly, rather than just provide the basic commands, the author has crammed in as many options as his limited imagination can dream up. **RENUMBER**, for example, allows you to renumber the whole program, part of it and even move a block of code. Commands such as **CHANGE** are even more complex.

Thirdly, maximum use is made of the many ways of storing and handling files, allowing some extremely involved operations.

For users of BASIC, there are a full range of editing tools. These include:

DELETE
RENUMBER
FIND
CHANGE
TRACE
DUMP
WHY
APPTIME
MERGE

These allow you to write code, run and debug and edit it in a simple manner. Rather than clarify details of all of these commands, I will mention those which were most outstanding.

FIND: This allows you to look for a specified pattern of characters. The

command is extended, however, to allow you to specify which position in each line to search, specify the area to search and to specify pattern matching with "wild cards".

CHANGE: This finds a specified pattern of characters and replaces it with another pattern of characters. The command supports all the options of **FIND** with a claimed 768 code combinations. The potential of the command is quite phenomenal allowing operations which would normally be very difficult to achieve in BASIC. You can, for example, concentrate lines to longer than 80 characters, remove **REM**s, find unvisited references or start a line with a number. I found this a potentially powerful command which required a lot of concentration probably with a cold wet towel wrapped around your head.

TRACE: Most trace commands give some form of a scrutiny list of line numbers on the screen which at best is unmanageable and at worst wrecks the screen format. With SYSRES, you have the choice of two optional windows at the top of the screen. The right hand window lists part of each line as it is executed and the left hand one gives the value of each variable every time it is redefined. The option to pause or slow execution or print the windows ease the viewing of the trace.

MERGE: This is a true merge which will interleave the program lines of disk with a program in memory.

For machine code users, these commands are even more useful allowing the preparation and editing of source codes. To allow the manipulation of source codes suitable for use with assemblers such as the

KCL, assemble, PUT and GET are provided. This allows you to take advantage of the superior SYSTRIS functions while maintaining compatibility with the assembler. The PUT command strips off the line numbers and saves the program as a sequential file. Very handy. To aid debugging of machine code, a BREAK line is provided. This is accessed by the usual way via a BREAK instruction or from a MON command. If no monitor is present, details of the page where the break occurred along with the contents of the registers, etc. are given. If a monitor is present, it is entered. The package comes with a public domain monitor (XMON) with several variations at different addresses. The system also seems to work with other monitors, however. One rather bizarre feature is that the bidirectional scrolling is active, even from within the monitor. This allows you to LIST a source code or BASIC program without leaving the monitor. This offers some useful debugging features.

Those of you who use binary files

will know the irritating way that the BASIC pointers are left so that any attempt to LOAD or amend programs get an OUT OF MEMORY error. To allow for this, three commands are provided. BLOAD and BSAVE allow the storage and retrieval of binary files without this problem. BRUN loads a binary file and commences execution at the start address of the code. This command also allows you to transfer parameters, provided that your code requires this. The following syntax is therefore accepted:

BRUN "myfile",param, param

A slightly stranger method of handling files is provided by the EXEC command. This command is aimed at providing a means of loading key definitions and other more extensive functions. The BASIC program is saved as a sequential file which can then be handled by EXEC.

Most utilities provide a means of redefining keys, and SYSTRIS is no exception. Generally, these are confined to function keys, but

SYSTRIS, somehow predictably, goes much further. On boot-up, 16 of the alphabet keys are defined with common BASIC and SYSTRIS commands which are accessed by pressing the LOGO key with the appropriate alphabet key. The KEY command can be used to additionally define most of the keys when used in conjunction with the SHIFT key. Redefinitions can be set up manually or by loading definitions via EXEC.

An important feature of this type of software is the need to give nicely formatted output. When listing source code or BASIC programs, SYSTRIS uses white for line numbers and the normal red colour for the rest of the code. The normal scroll is changed so that you cannot accidentally lose the screen contents by trying to move the cursor off the bottom of the screen. Instead, when a program is longer than the screen, you can list in either direction - a much more civilized and controlled approach. LISTing long files can be paused by pressing the SPACE BAR or slowed by pressing CTRL.

EXTENDED EDITOR COMMANDS

/	[F]	Quick load from disk
!	[F]	Quick load from disk with auto run
APPEND	[F]	Append from disk to end of current program
ALIAS	[F]	Auto line number (after header)
BLOAD	[F]	Load machine language (binary) file
BRUN	[F]	Load and execute machine language program
CHANGE	[F]	Change pattern to another pattern
CLOSE	[F]	Close one or all files
CMO	[F]	Set output to file (does not use "HEAD")
DEL/DEL	[F]	Delete a range of lines from program
DEMP	[F]	Strip off extra variables to screen of file
EXEC	[F]	Execute a file as keyboard command
FINP	[F]	First occurrence of a pattern
GET	[F]	Read a sequential file into editor
KEY	[F]	Define a key as a special function
KEYS	[F]	Turn key functions on
NULL	[F]	Disable SYSTRIS*
NULL*	[F]	Disable SYSTRIS* and preserve memory
LOAD	[F]	Improved BASIC LIST command
LOAD	[F]	Default to disk drive
ML/ML	[F]	Move from disk into current program
MON	[F]	Break to current machine language monitor
NAME	[F]	Restart program after "COLD"
NAME	[F]	Load program to disk as new file
PUT	[F]	Resume all or part of program
RENAME	[F]	Run current program, ignore screen garbage
SAVE	[F]	Default to disk drive, allow options
SET	[F]	Set disk device, screen, multiple drives
SET	[F]	Set printer channel, format mode, pages
TRACE	[F]	Select 1 of 2 branching modes and speed
VERIFY	[F]	Compare current program against diskfile
WAV	[F]	Print position of last error
WHTT	[F]	List line of break or error
*	[F]	Send output to printer
#	[F]	Display current version of SYSTRIS*

[F] Added command

[F] Old command with improvements

DIRECTORY ORIENTED COMMANDS

/	Quick load disk file
!	Quick load file with auto run
APPEND	Append file to end of current program
BLOAD	Load machine language (binary) file
BRUN	Load and execute machine language program
EXEC	Execute file as keyboard command
GET	Load file into editor
LOAD	Same as "F"
ML/ML	Move file into current program
PUT	Send file to disk, allow options
SAVE	Save program to disk, allow options
VERIFY	Compare current program against file
WAV	List file to screen
WHT	List file to printer (allows formatting)
WHT	Copy file to specified drive
WHT	Search the files specified drive

EXTENDED DOS SUPPORT

# [Type "F" keyboard]	These commands may be used interchangeably, as per the following DOS SUPPORT features.
1 [Type "F" keyboard]	
1 [Original keyboard]	
1 [Type "F" keyboard]	
#	Display disk status
##	Format (HEAD) a new diskette
##	Force initialize diskette
##	Verify diskette (y/n/f)
##	Copy diskette
##	Copy to command line file(y/n)
##	Remove file
##	Search file(y/n)
##	List directory(y/n)
##	Reset disk drive
##	List disk file**

For those of you with printers, things are even more attractive. Many commands can be sent to a printer by prefixing them by %. The names of output and the device are set by the SETP command. By adding 64 to the device number, a formatted output can be obtained. This format option does a number of things:

- Line numbers are right justified.
- Multi-statement lines are split with one statement per line.
- Spaces are inserted between commands.
- FOR-NEXT loops are indented by level of nesting. For example, the following program:

```

90 FOR I=1 TO 20
100 FOR J=1 TO 20
110 FOR K=1 TO 20
120 PRINT I*J*K
130 NEXT NEXT NEXT
    is printed as:

90 FOR I=1 TO 20
900 FOR J=1 TO 20
110 FOR K=1 TO 20
120 PRINT I*J*K
130 NEXT:
130 NEXT:
130 NEXT:
    
```

The obvious value of this feature is that you can write a program as compressed as you like and still get a legible hard copy to aid debugging. So far as I could establish, SYSTRIS does not provide a Commodore driver.

SYSTRIS is hidden neatly behind the ROMs and uses only a page of memory from 8C00 to 8C1F. No indication is given of how page or other memory usage is assumed that there are no specific compatibility problems. The manual claims that the program attempts to analyse other cartridges or programs present, which might give extensions to BASIC and make appropriate allowances. I tried using SYSTRIS with the MER80 assembler cartridge with no obvious clashes. Clearly, machine code users will need to take care as to which areas of RAM are used by their programs.

Overall Impressions

I admit that I am wary of over-praising a piece of software, but in this case, I am hard pressed to hush it. So often I have seen software which dabbled with the job it's tackling, but falls short due to carelessness or lack of attention to

detail. SYSTRIS is not one of them. The author has gone out of his way to provide a full complement of features and to ensure that every detail is covered for. The program shows an appreciation of the 64's operation and enters for the unusual but flexible file handling system.

The program comes on disk and not only is it unprotected, but the manual encourages the user to make a working backup. The manual comprises about a 100 pages of text held in an A3 size ring binder. The manual is well printed and reads well. Unlike many products where the manual is the last and most poorly produced item, the SYSTRIS manual is detailed and offers both examples for use and plenty of hints.

The price may at first appear high but for what is a *user's library* of programming this is an investment for anybody who wishes to use the 64 to the full.

Facilities:

Product: *System*. **Supplier:** *Financial Systems Software Ltd, 2nd Floor, Jubilee House, St Mary's Street, Worcester WR1 1NA. Tel: 0903 61365. Prices £24.95.*

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YORK ELECTRONIC RESEARCH Commodore 64/Plus 4 Products

5502 ASSEMBLER 64/Plus 4 tape/disk £12.95

A sophisticated two-pass symbolic assembler and text editor which supports tape and disk filing. The assembler, the editor, and your source and object code may all be resident in memory simultaneously, facilitating rapid and extensive code development. Recently extended manual with many examples.

286 EMULATOR/CROSS-ASSEMBLER 64 only disk £15.95

A unique integrated 286 development package. The emulator simulates 286 source code into optimised 6809 which runs on the 64 at approximately one sixth the speed of a 286 (2.5M). It supports all but 20 of the 8086 286 operations, calls to 6809 routines, and interrupts. The cross assembler generates two or binary .286 object files. The disk also contains a powerful editor and several example programs.

84-DIRECTIONAL RS232C INTERFACE WITH COMMUNICATIONS SOFTWARE 64 -4 tape/disk £29.95

The 84 DIRECTIONAL supports RS232C via the user port. This interface provides the necessary voltage conversion for direct connection to RS232C printers, modems and other devices. It is compatible with EasyScript and SuperScript. The unit is supplied with 1 metre of cable (and the pin-to-pin wires) terminated in a 20-way male (or female) D-connector. The software includes a terminal emulator which supports applications and auto-dial, file transfer utilities, a menu driven port initialization program, and a transparent printer driver which enables the 64/Plus 4 to redirect device 4 printer output to the RS232C port.

*Prices apply.

Prices are fully inclusive. Domestic orders add £2.50
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The Alternative Collection

One of the up and coming budget software houses, Alternative Software look all set to topple some of the top ten companies from their perch at the top. Here's your chance to discover how good their games are

By Tony Hetherington

The budget games market is in a turmoil. Once the sole contenders, mighty Mastertronic has competition from Firebird who has just picked up some Melbourne House games such as Rock 'n' Wreck, Professor, Mage, Mage's Revenge and Sherlock Holmes from the Australian Melbourne House. This is even more incredible when you remember that Mastertronic bought the UK Melbourne House! If that wasn't enough the can price Kings are facing the challenge of Code Masters who has gone from next to nothing to dominating the charts in under a year! Now there is a new player in the arena but can Yorkshire based Alternative Software breakthrough into the big time? As they say, the proof of the pudding is in the playing so we tested ten new Alternative £1.99 games.

JUDO UCHI MATA

An release of Martech's Uchi Mata gives you the right of your life as you take on a human or increasingly difficult computer opponents at the ancient Japanese art of uchi mata combat. Armed with just your wits and a good joystick you must literally get to grips with your opponent so you can then throw him with moves such as Tomoe-Nage, O Soto-Gari, De Ashi Barai and, of course Uchi Mata.

To succeed with these moves you have to grab your opponent with a stronger grip than he's got on you and complete a series of joystick moves that will hopefully leave him flat on the mat. At the end of the game your score is accumulated and converted into an award that ranges from white belt to black belt and beyond through the Dan. A good bonus 'em up that's a more subtle variation of the kicks and chops of Karate.

OLYMPIC SPECTACULAR



Eleven Olympic events face keyboard athletes in a release of Database's Micro Olympics that was first released during the Decathlon boom. The events are split into three groups, running (100, 200, 400, 800, 1500 metres), throwing (javelin, discs, hammer) and jumping (long jump, high jump and pole vault).

To play the events you will need a combination of keyboard hammering and timing as you gain speed and jump or throw at the right time and are poorly rewarded for your efforts by jerky basic graphics. The running events can be particularly grating, both on fingers and keys, as even the 1500m is a sprint!

SOCCER BOSS

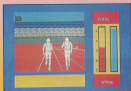


Football Games come and go but Football Manager still makes the headlines but Soccer Boss offers a good alternative and is £1 cheaper.

The game lets the new manager of Liverpool, Southgate or whatever team you choose to command firmly in the dark with only a few instructions but you'll soon guess the players with the highest skill levels are the ones to pick.

As the game proceeds, you'll have to grapple with the selection problems, injuries and even the gas bill as you strive for league, cup and even European glory. This game was originally released by Penssoft but they only had six teams in the league, now it's back at a fraction of the cost with full divisions. Here we go, here we go, here we go!

RUN FOR GOLD



Run for Gold is an athletics game in which skill and tactics are as important as your runner's speed and stamina. You control two runners whose quest is gold in the 400 and 800, 1500 metres. However, there are forty others who want the same medals.

You begin your quest in local meetings that will qualify you for a race at Crystal Palace, then onto the European Finals and finally the Olympics.

The races are run with you in the centre of the action and you must control your pace and position on the track so that you're well placed for the closing sprint. Makes a change from the frantic waggling of the Devastation games.

SCARE BEAR



You are Fred Bear trapped in a nightmare brought on by eating a cheese sandwich. Unfortunately, this is no ordinary dream as it's a nightmare replete with real. You are trapped in a car in a yard and are pursued by fluffy snakes, wooden snakes, toy trucks, turtles, keyrings, ghosts and a whole host of other toys that have turned nasty and are out to get you.

Your only defence against this attack is a nuclear homeopet that delivers a toy trucking honey ball as you leap over your victims in your car that can accelerate, break and pump!

FOOTBALL FRENZY



Football Frenzy is a football game with a difference. There are no joystick controlled players that dribble and shoot or tactics to choose as this is an adventure. Your team,

Grimsditch Rangers have somehow managed to reach the Cup Final and as manager you've just three more days before you lead the team out onto the hallowed turf. Surely nothing can go wrong! However, everything does and it's your job to get the team to the stadium on time. Two word command sentences only, not even a lot but there's a lot of adventuring packed into this program for only £1.99.

WIZ BIZ



More budget adventuring for those who like to talk their way out of trouble. In this game of magic and mayhem you come around a lake a particularly heavy drinking session in the Duck and Plunger. Halfway during the evening you do your usual party piece of turning one of your friends into a black and purple Salamander. When you turned Mike, your victim back to normal he was a curious shape and didn't seem to see the funny side but instead planned revenge. Now you find yourself, complete with burgover, coming around in his Castle and the only thing in view is a sea of legs!

MICRO BALL



Being a goal standing player is supposed to be a sign of a mispent youth. Unfortunately, I chose the less probable position of goalkeeper. As a result I haven't more targets, scored more replays and claimed more extra balls than Steve Davis has potted blacks.

Up to four players can play Micro Ball as more likely you can play four games at once as you attempt to keep the ball in play, knock down sets of targets for bonus multipliers and score the 250,000 points necessary for the first extra ball (400,000 and 750,000 bring second and third extra balls).

As the scores rack up, watch out for "four shen" as a bad bounce can send the ball down one of the side channels before you can get to the tilt button.

Micro Ball occasionally defies the laws of physics as the ball seems to stop in mid air and then carries on once the program has worked out where it's going, but for £1.99 pinball wizard's will enjoy this.

CRICKET INTERNATIONAL

There have been very few cricket games released for the C64. However fans of the mellow and leather can now play 60 over limited over matches between their own teams or in a match between England and the rest of the world.

As bowler runs in he can decide where to bowl the ball and where to pitch leaving the batsman to judge the flight of the ball, decide the angle of the shot and get the bat to the ball. If you bat the ball you can attempt to run between the wickets. The fielding side can then select a fielder to run for the ball and attempt a run out if they haven't already bowled you.

This isn't an easy game to play; so don't expect to score too many centuries particularly against the computer opponent.

RED ARROWS

Have you what it takes to fly in formation with the world's best display team? Now's your chance to find out as you jump into your Hawk and take to the skies with the elite of the RAF, the Red Arrows.

The game features two parts in which you learn how to fly a Hawk and then fly in formation with the rest of the team. The controls to fly the Hawk can be selected for the keyboard or joystick and include controls for the Hawk's thrust and brakes, ailerons and elevators. Once you've kept the plane in the air and on course you're ready to join the rest of the squadron and perform formation manoeuvres such as the Diamond, Pyramid, Eagle and Manhattan. In all these formations you fly a plane at the back of the group as your screen is full of the other planes which can make it difficult to follow.

Twinkl:

Alternative Software Ltd., Units 3-6 Bailrigg Industrial Estate, Forrethwaite, West Yorkshire, WF4 3LN. Tel: 0977 567171.

Software for Sale

If you think that one of our programs looks very interesting, but you can't afford the time to type it in then our software service will help you out.

It's three o'clock in the morning. You sit at the computer keyboard having just finished a marathon typing session entering one of the superb programs from *Your Commodore*. Your fingers reach for the keyboard and press the letters R, U and N. You press RETURN, sit back and nothing happens.

Everyone has probably faced this problem. When it does happen it's a matter of spending hours searching through the program for any typing mistakes. No matter how long you look or how many people help you, you can usually guarantee that at least one little bug slips through unnoticed.

The *Your Commodore* Software Service makes available all of the programs from each issue on both cassette and disk at a price of £6.00 for disk and £4.00 for cassette. None of the documentation for the programs is supplied with the software since it is all available in the relevant magazine. Should you not have the magazine then back issues are available from the following address:

INFONET LTD, 5 River Park Estate, (Berkhamsted), Herts
HP14 1HL
TEL: (0447) 36661

Please contact this address for prices and availability.

The Disk

Programs on the disk will also be supplied as totally working versions, i.e. when possible we will test our Basic Loaders before making use of the programs much later. Unfortunately at the moment we cannot duplicate C16 and Plus/4 cassettes. However programs for these machines will be available on the disk.

'What programs are available?'

At the top of each article you will find a strip containing the article type, C64 Program etc. So that you can see which programs are available on which format, you will also find a couple of symbols after this strip. The symbols have the following meaning:



This symbol means that the program is available on cassette.



These programs are available on disk.

Please Note

Since the programs supplied on cassette are total working versions of the program, we do not put disk-only programs on tape. There is no sense in placing a program that is quick to be reading from disk on to tape.

OCTOBER 1987

Shadow Boxing — Use the memory under the C64's ROMs for storage.

Adventure kit — The first module of our DIT Adventure system. (C64)

Sprite Grabber — Grab Sprites from other programs and save them for later use. (C64)

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ORDER CODE

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ADVENTURE KIT II — The second part of our C64 adventure writing kit.

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128 PREFERENCES — Predefine your computer's default characteristics.

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JANUARY 1988

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FEBRUARY 1988

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Cassettes or disks are available from March 1988. Please ring the editorial office (01-437 8626) for details of these.

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Superior are now making their mark on the Commodore games market, and this month's competition puts your imagination to the test. Guess the names of the characters from *Bone Cruncher* and a copy of the game could be on its way to you. We are giving away ten games and a personal stereo to the first ten correct entries pulled out of the hat after the closing date.

How to Enter

Simply allocate the correct name beside the relevant letter and send your entry to the address on the entry coupon. (Hint: our game of the month just happens to be *Bone Cruncher*!)

The Rules

Entries will not be accepted from employees of Argus Specialist Publications and Superior Software. This restriction also applies to employees' families and agents of the competition.

The How to Enter section forms part of the rules. The Editor's decision is final and no correspondence can be entered into.

Bone Cruncher Competition Entry Coupon

a)
b)
c)
d)
e)
f)

Name

Address

.....

.....

Postcode

Post to: Your Commodore,
Bone Cruncher Competition,
1 Golden Square, London
W1R 1AB.

Closing date:
Friday 25th March 1988.

Bone cruncher

Your chance to win one of the hottest games on the market in this month's competition

A



B



C



D



E



F



DATEL ELECTRONICS

256K SUPEROM EXPANDER

- [illegible]



4 WAY KERNAL BOARD

- ☐ Machines have a store of like items in stock
- ☐ Each machine is full or 3/4 complement level through a 1 or 4 different operating systems.
- ☐ Each time the server is called to assist between systems.
- ☐ Machine number only - ready to accept your next step.
- ☐ Servers can have all your different systems available at one time.

11. **11.2.95**



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- ☐ Makes tape to tape backups.
- ☐ Works with most backup loaders etc.
- ☐ Requires access to two IBM type data streams.
- ☐ Makes partial copies.
- ☐ Very simple to use.
- ☐ LSI level software.

1000



RESET CARTRIDGE

- ☐ Stoppetjes test item.
- ☐ Handle even small "stoppetjes" program.
- ☐ Add place first-aid-kit to kit
- ☐ He is a strange pet.
- ☐ He is a pet.



PUBLIKATOR:

- ☐ Copies whole disk to one place - only one drive required
- ☐ Makes backup copies in eight sectors
- ☐ Tape drive is the fastest, most efficient and easiest to use disk-copying system ever conceived.
- ☐ Makes backups with 100% on-board ram and it's own operating system - no software to load
- ☐ Makes multiple copies from one



16K EPROM BOARD

- ☐ Accepted in the 1940s.
- ☐ Rejected by colleagues in the 1940s or 1950s.
- ☐ Its basic principles were.
- ☐ Its criticisms.

DISK NOTCHER

- ☐ I usually visit family friends just this regularly.
- ☐ I often visit family and/or friends.
- ☐ I sometimes visit.
- ☐ I have never.



DEEP SCAN BURST NIBBLER™

- **These questions are not meant to be answered in a single post**
- **1. How often is a security assessment typically performed on a parallel rather than a sequential basis?** (10%)
 - **Correct Answer:** **As needed**
- **2. Which type of threat vectors is most common?** (10%)
 - **Correct Answer:** **Human factors**
- **3. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **4. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **5. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **6. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **7. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **8. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **9. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**
- **10. Which of the following is not a threat vector?** (10%)
 - **Correct Answer:** **Malware**

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

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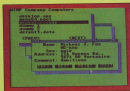
- [illegible]

RESEARCH **INNOVATION**

Through the Round Window II

We conclude the instructions for WEDS and give you a demo to play with

By Rony van Haar and Bant Duchesne



Pull down menus, windows and joystick driven pointers are no longer difficult for Basic programmers to access with WEDS. Continuing on from last month's menuwork program we give you the remainder of the programming information you need to use WEDS together with a demo program (at the rear of the magazine) which illustrates how to use some of the WEDS commands.

CHECK LIST

- Due to a small programming mistake you can't define a shadow colour. If you specify a colour after the text string, follow it directly by another colour - you have to use a value or a variable instead.
Wrong: MENU 1,.....a6,1,1
Right: MENU 1,.....a6,1,1
- The position where the window will be printed depends on all the menus which have a lower number. Sounds

confusing? Well it isn't, let's imagine the following:

You've got three menus with the following names: 'TASK', 'FILES', 'OPTIONS' as you can see the headers have a length of 4,5 and 7 characters. So the first menu starts at 8 (begin position) and the second menu starts at the 13th position and the last menu at the eleventh position. Each menu will be separated with a space as you can see.

Since the print position is calculated by the other menus, you'll have to be careful with the v-length of the window. Let's imagine the following: you have already defined six menus and the seventh (which you want to add) starts at position 36 but the length of the window is 10, as you can see this is wrong because the sum of up and if exceeds 40...

• The v-length of the window also depends on the shadow flag. If this is set to one, you have to add 1 to the v-length. So remember: $cl + vlength$ may

not be greater than 40.

- Watch out that the length of the names of the options may not exceed the (v-length)+2.
- Sometimes when you define menus and you define different colours, you can observe that the inverted option has when you choose an option has two colours! This is because WEDS will not fill up the remaining gap of characters, to solve this problem, fill each option (after the menu text of course) up with spaces. Try this:

```
10 MENU 1,18,2,1:"HEADER"-
OPT1=OPT2 1"3,11,1
20 DESE 9:MENU 1 ON:PAUSE 0
```

Run it and go to an option (first turn your pointer on) and click the button. As you will see the inverted list has two colours! To cure this, modify line 10 to:

```
10 MENU 1,18,2,1:"HEADER"-
OPT1(14 spc)=OPT2(14 spc) 1"3,11,1
```

Run it again. This time it is perfect.



WCOPY

Syntax: WCOPY *sq:ip*

Mode: all.

Output: screen.

This is almost the same as \$WMOVE with the exception that the system copies the window to another position (thus creating another window). If there are already four windows on screen and you try to WCOPY you'll get an error. You can only copy APW.

The cursor (window) position in the window will be saved and placed on the other new (identical) window on your screen, e.g.

Add following line to the previous program:

40 PAUSE 0:WCOPY 1,1:PAUSE

0:WMOVE 1,1:WPRINT"YES"

This will demonstrate you what WCOPY really can do!

If a "BAD WINDOW PARAS ERROR" occurs see above.

WMOVE

Syntax: WMOVE *sq:ip*

Mode: all.

Output: screen.

A window manipulation command alters the data pointer to another position. If a bad para error occurs look at WOPEN for explanation. If no window of a wrong type is present on your screen, an error report is printed, e.g.

10 WOPEN 2,2,000,"MOVE",2,1,12:PAUSE 0

20 WMOVE 4,1:WPRINT"MAGIC"

30 PAUSE 0:WMOVE 8,0:WPRINT"HELLO"

SOPEN

Syntax: SOPEN *sq:ip,wd,sh,wd*

Mode: all.

Output: screen.

This command opens a static window (\$W). The only difference between APWs and an \$W is that they don't need a start position. It is calculated automatically for you and centered in the middle of the screen (see test7). You simply have to specify the window size. When you try to open an \$W there is still an PDM or a SW on screen, an error is printed. However, this will not happen if there still is an

APW on your screen.

The border of a \$W is also different (like any different window type). A \$W has the highest priority, lowest has a APW and a PDM is among them. Well what does this mean? It means that you have to close a first by SCLOSE before you can use commands such as WCOPY or WMOVE. And this is the reason why each time you try to open a PDM or APW when there is still a \$W on your screen an error is given. The last three paras have the same function as by APW and PDM, e.g.

SOPEN 10,10,1,1:WPRINT"THIS WAS THE LAST INSTRUCTION"

Coming Soon

You now have all of the programming information required to put WEDS to use. The demonstration program in this issue should make use of the program even easier.

In the next instalment, WEDS will provide you with a desktop environment, written completely in WEDS BASIC.

Should you produce any utilities yourself using WEDS BASIC please send them to

See listings on page 161

79

TELETEXT

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The Microtext adapter links your C64 or C656 into a sophisticated Teletext Receiver, giving you full colour display of any of the free pages from Celexa or Celexa. As well as news and sports results, there is read, call and air travel information, what's on TV and weather reports. You can get an update on share prices or foreign holidays. And not only does Teletext cater for special interests, like computing, gardening, or gardening, but you'll also find things to do and places to go in your area, credit comparisons and even your daily horoscope. And much much more. It's almost easy to use and it's all at your fingertips.

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Bone Cruncher

All good clean fun in this month's star release - but only if you can master the art of making soap!

By Tony Hetherington



Bone Cruncher is a soap opera with a difference: as the star of the show is a dragon called Bone who makes a nice little career by collecting skeletons to make soap that he then sells to the morticians bathing in his castle's moat.

Your job as Bone is to keep your customers happy by generating a constant supply of soap. You can get limited help from your business partner, Fanny, whose the equivalent of a henpeck, but since he's not too bright you're on your own most of the time.

The headquarters of the "Bone Bathing Company" is some dark, dank and dingy castle and the game is set in a series of increasingly difficult chambers. There are 22

chambers to be solved and if you manage to complete them all you will win a portable stero! That's how confident Superior Software are that you'll last!

Each chamber is a maze of walled off rooms that are filled with earth which our hero can dig through. There are also doors that can block the way until the key is found and their need properly? Skeletons have to be collected, as do cashmere which turn them into soap; staircases that lead up to the bathing morticians and deadly monsters, spiders and ghosts that populate the caverns and can kill you with a single touch and traps that lead to oblivion!

To complete a chamber you must collect the required



number of soups by taking skeletons to a rail room and then delivering them to the staircases. However, blocking your way stands a mind-boggling array of puzzles with the monsters lurking at the top of the list.

Monsters are killed whenever they are trapped and turn into incredibly convenient skeletons that can be added to your store to make more soup. That may sound simple but juggling the joystick movements required to trap a monster is far from easy and involves strategy, tactics, a lot of trial and error and globs!

Globs are round purple blobs, with two yellow eyes and a bad spiky haircut that spend most of the game being pushed around (by you) when they freeze in a glob. Globs don't move very much but they do float towards the smell of



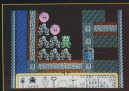
barfing monsters, and since this is determined by the direction of the last staircase you delivered soup to, you have limited, but important, control over the game's globs. By pushing globs and anticipating the direction they will move as you deliver soup to staircases you can trap monsters in open corridors to new parts of the cavern but can also trap yourself and Perry. If you trap yourself then your only way out is to smother one of your five lives to restart from the last soup delivery. If Perry is trapped then he's always plummeting and he loses one of his three lives. Perry may not be important in the early levels but later in the game is immunity to monsters and his ability to grab them is invaluable as it either allows you to push a glob onto a collared monster to trap and kill or simply to get past alive.

Spiders are a little trickier as although Perry is invulnerable to their touch he can't grab them, neither can

they be killed and to make things worse, a spider will eat any skeletons it can which could cost you the game. No skeletons, no soup I'm afraid. Luckily, if you keep your mind in gear you shouldn't run into too many troubles since spiders always cling to the left hand wall and so you can predict their moves and even get them going around in circles.

The early levels are relatively simple and if you look before you leap you should be able to collect all the skeletons you need to keep the barfing monsters in soup. However, the game suddenly throws you in the deep end. There just aren't enough skeletons so you have to set about making some out of dead monsters.

However to move the globs to kill the monster also blocks crucial passageways trapping either you or Perry and the few skeletons that are there are either buried in a solid block of globs or in a locked room so you have to run the



gauntlet of spiders to reach them. To make things worse you KNOW there must be a solution! Then, just when you're so annoyed that the C64's about to fly across the room you try one more plan. Inherently it may sound, it might just work. It doesn't, but you're hooked again.

A few hours, days or weeks later you'll finally solve it and the whole process starts again. At the end of each level the game gives you a password that you can type in as a shortcut through the levels you're already completed. However, you may find it useful to practice these completed levels occasionally as to win the personal scores you have to complete all 22 caverns in a single game!

Bene Crumpler will be compared to Superior's own Raptor series and other Boulder Dash style games. Although it is set in a series of 22 levels in which the hero digs out dirt to collect skeletons or diamonds other game elements such as Perry, the globs and the way you must turn monsters into skeletons creates a game that is out on its own. Add functional but funny graphics (such as the Globs grimacing when you shove them or Bene scratching himself while he's waiting for you to smother your next move), a catchy tune and digital speech introduction and you have a game that you must not miss.

Feedback:

Editor: Anne Corbett, Supplier: Superior Software, Ryegate House, Stinner Lane, Letch, CV37 7JY, Tel: 01223 419451. Machine: C64, Price: £11.99 - disk only.

Developed by: S/S, Playability: 99/10, Graphics: 5/10, Value: 99/10.

Plus/4 Assembler

*Serious software for Plus/4 users is sadly lacking
serious software. We come to the rescue with a superb
assembler*

By Steve Carrie

The Commodore Plus/4 enjoyed a surge of popularity due to exceptionally low pricing but unfortunately still suffers from an acute shortage of software compared with its more successful predecessor, the Commodore 64. This is certainly true in the area of utilities, although to be fair, the Plus/4 does come equipped with a pretty good, although basic machine language monitor (MLM).

The program I have written is a two-pass symbolic assembler which is disk-based, i.e. it reads its source code from a disk file and writes the assembled code to another disk file. The source file is assumed to have an MSDOS-type file extension .ASM. The resultant assembled code has the extension .EXE. For example, when the program runs, it asks the user for a filename. If you enter PROCI and press return, the program will assume that the source file is called PROCI.ASM and will produce a resultant with the name PROCI.EXE.

The load address of the resultant is the address given in the assembler directive ORG (code origin). You should therefore ensure that the correct address is given here. The code address defaults to \$8000 in the absence of the ORG directive. When assembled, the resultant is loaded by either the MLM I command or by a BASIC LOAD with a secondary address of 1.

Given the disk-based nature of the assembler, fairly large source-code files

may be used. The Plus/4 allows about 60K of BASIC. Thus the same amount is available to source code programs since the normal BASIC editor is used to prepare programs.

Getting it all in

The program is presented as a BASIC loader with lots of DATA statements. Each line is checked against the checksum value but I will a good idea to make use of the Four Commodore loader program. Should a problem occur, the line where the fault was detected will be printed. Before typing in the program, you will have to move the start of BASIC upwards in memory by 4K. Type in the following direct command:
POKE \$192,0:POKE \$3,1:POKE \$4,\$2-NEW

This moves BASIC up to \$192 in memory. If you are typing in the program in stages, you must remember to type this in every time before you start.

When the program has been typed in, SAVE it first then RUN it. If all is well, the program will be built in memory and SAVEd to disk.

Reset the machine then load the new program. The assembler has been designed to LOAD and RUN like a BASIC program at the normal BASIC start address (\$1800) and will return to BASIC when assembly stops. You are

asked for the filename which, as mentioned before, is assumed to have the file extension .ASM. During Pass 1 the assembler will only print something if an error occurs. If this happens then the line in which the error occurred is printed along with an error message.

During Pass 2, a full listing is output to the screen. Any error is shown AFTER the line in which it occurred and assembly stops.

Editing your program could not be simpler. You simply use the Commodore BASIC editor with line numbers as you would for a BASIC program. However, there is a catch... (things would never be the same without a problem or two...). Normally, the Commodore line editor tries to tokenize anything in the input line which looks like a BASIC reserved word. As certain assembly mnemonics contain character sequences which resemble BASIC commands, we have to prevent this happening. The program "EDIT" is a small BASIC loader with a machine-code program in DATA statements. When it is loaded and RUN, it causes a bypass of the tokenization routine for program lines only. This means that direct commands such as LOAD, SAVE, REMEMBER, etc. will all work OK but DON'T TRY TO EDIT ANY BASIC PROGRAM WITH EDIT INSTALLED OTHERWISE YOU'LL GET SOME REALLY WEIRD RESULTS!!!

Assembler Directives and Formats

There are six assembler directives:

BYT	Assemble bytes to memory. This directive also allows text to be entered. Typical examples are: 10 <code>byt \$N,Hello,CBM,\$64,\$80</code> 20 <code>byt 21,34,109,91a</code>
WOR	Assembles 2-byte words to memory. Bytes are arranged in lo-byte, hi-byte order. 10 <code>wor \$0071,12345,vector1</code> 20 <code>vector1 wor 0,0000</code> This example also shows how symbols may be inserted into WOR and BYT directives.
EQZ	The <code>eqz</code> directive allows you to associate a symbol with a zero-page memory location. When referred to later, this symbol will assemble in zero-page addressing mode. 20 <code>pointer eqz \$14</code>
EQA	The <code>eqa</code> directive allows you to associate a symbol with an absolute memory location. When referred to later, this symbol will assemble in absolute addressing mode. 40 <code>inspector eqa \$8104</code> 50 <code>inspector eqa inspector+2</code>
RIS	The <code>RIS</code> directive allows an area of memory to be set aside for a table of some such thing. It simply adds the amount specified to the assembly program counter. 100 <code>table</code> 110 <code>res 100</code> 120 :
ORG	This directive sets the code origin in memory. Because the disk system uses this to set the program load address, it is advisable to use this as the first line of any program. 10 <code>org \$a000</code>

You may insert comments into a source program using the semicolon. As you may have noticed above, symbols are declared using a full-stop. When referred to later, only the name need be given.

Assembly Language Formats

Immediate operands are assumed to be preceded by the hash (#). Hexadecimal numbers may be prefixed with either the dollar or underscore (\$&). Ascii characters may

be inserted into something like LDA # 'A'. This will load the next code value of the letter A. Decimal numbers have no prefix, thus LDA # 30 will assemble to load the accumulator with 30.

As mentioned above, symbols must be declared using a full-stop, for example:

```
10 org $7000
20 memory=$1001
30 memory=$1008
40 :
50 lda # < memory
60 lda # < memory
```

```
70 sta memory
80 sta memory+1
90 res
```

In this example, you see that the symbols `memory` and `memory+1` may be used to load the lo-order or hi-order byte of an operand respectively. Also you may add or subtract values as in line 80. Note that in a line such as LDA # < memory+, the "memory+1" is evaluated BEFORE the operator takes effect.

(A Commodore 64 version will appear in a subsequent issue.)
See listings on page 167

There are many games today which include sprites in the border to display scores etc.

The routine presented here will allow you to do just that.

The program sets up an INQ to check when the screen raster line is at 249. When it has reached this, bit 3 of memory location 53263 is cleared so that 24 row mode is possible. This has the effect of making the bottom border disappear.

The raster will continue to the top so that the top border will also disappear.

When the raster has reached 0, bit 3 of location 53263 is set to 1. This sets up 25 row mode and the screen is displayed as normal.

POKEing various values into memory location 16383 allows you to create some weird effects.

By G.Saunders

```

10 REM *****
20 REM  SPRITES IN BORDER
30 REM *****
40 BL=4:LN=30:SA=49152
50 FOR L=0 TO BL:CX=0:FOR D=0 TO 15:READ A:
CX=CX+A:POKE SA+L*16+D,A:NEXT D
60 READ A:IF A<CX THENPRINT"R"
FOR IN LINE",LN+(L*16):STOP
70 NEXT L:END
80 DATA 120,163,39,160,193,143,
20,3,149,21,3,142,1,142,13,220,
1538
90 DATA 142,26,308,282,143,18,3
08,173,17,208,41,247,143,17,208
,88,3894
100 DATA 96,163,1,143,25,308,17
3,18,208,201,249,178,16,173,17,
208,3871
110 DATA 9,8,141,17,208,169,369
,141,18,208,76,129,234,173,17,2
08,3885
120 DATA 41,247,141,17,208,169,
8,141,18,208,76,49,234,0,0,0,15
49
130 SYS 49152:REM START PROG.

```



The New

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The Choice of Modem

There are a number of factors to be taken into consideration when entering the world of communications. Here we look at two modems at opposite ends of the price scale

By David Jarvis

The modems we will be looking at are the Rik Enterprise I and the Pace Series Four 1200S. Before describing each modem in turn, it's worth pointing out the hardware/software that is used with these modems, as neither one was specifically designed for use with the Commodore 64/128.

Rik recommended the Mustang 64 Communications Cartridge (92.10 from V2 Computing) for use with the Enterprise I modem. This item plugs into the cartridge port and offers readdata and scrolling terminal facilities. However, because the Enterprise I is equipped with a female 25-way D-type RS232 connector, it is not essential that the modem be used with the V2 software.

Indeed, to test the 1200 baud half-duplex capability of the Enterprise I, I interfaced the modem to the 64 via an RS232 interface which plugs into the user port of the 64/128. The software used with the interface was HomeTerm, which is part of the HomePack integrated suite of software from Ardisoft.

Basically the same applies with the Series Four. It too is equipped with a female RS232 connector, and can be used with the V2 cartridge, or connected to the 64/128 via an RS232 interface. For the purpose of this review, the Series Four 1200S was tested with both the V2 software, as well as HomeTerm.

Commodore Connection

This choice of connecting a modem to the 64/128 is a little confusing, and deserves further explanation. Cartridge software is very popular in this country, and because the major control lines are supported on the cartridge port, manufacturers have opted to put their communications and interfacing electronics into one package—a cartridge. The V2 Mustang software is one example, however, the cartridge in turn must be connected to a modem.

The next stage from this is to incorporate a modem into the package as well; examples are the Commodore modem and the Multimodem from Miracle Technology.

The alternative is to connect the modem to the 64/128 via the user port. To do this the user must purchase an RS232 interface (which costs as little as £200). Terminal software will be required to 'drive' the RS232 interface, but this should not be a problem as there are dozens of terminal programs in the public domain. One example is Rik's Commodore's very own Telecom 64, which was listed in the April 1986 issue. Connecting a modem via this method has the advantage that the RS232 interface can be used to drive devices other than a modem: a printer or plotter for example. The main disadvantage is

that there is no visual data software (but I know of which operates through the user port).

Enterprise I

Probably the best way to describe the Enterprise I is to say that it's a Voyager 7 with bits added on. The appearance and functionality are almost identical, and perhaps this is not so surprising as both the Enterprise I and the Voyager 7 were manufactured by Rik Automation.

Appearance wise, the Enterprise I is housed in a black casing with green lettering on the front panel. A rotary switch on the right is used to select the required baud rate, which can be one of 300/600, 9600, 1200/1200 half-duplex, 1200/75, 75/1200 baud and test. A feature which is not on the Voyager 7 is the on/off line button which is used when dialling/answering manually. An interesting oddity is that pushing the button in will switch the modem offline and out online. The other way round would have been more logical in my opinion.

As for the rear of the modem is the RS232 socket (datalog), phone socket, telephone lead and power cable. Of particular interest is the 25 pin RS232 connector. Looking inside the modem reveals that pins 1-6, 13, 17, 20, 25-29 and 35 are in use. Basically this means that connecting the Enterprise to your



Pace Series Four 1200B (left) and Kith Enterprise I.

Commodore should be no problem as a variety of options are available. The phone socket is recessed and allows a telephone to be used inline with the modem which saves you the expense of buying a splitter.

Using the Enterprise I proved to be simplicity itself, even though the manual is quite grotty. When used with software such as Minitang from V2 Computing the auto-dial feature can be used. The Enterprise series uses boring old relay technology to auto-dial, which is quite loud in operation and not the most reliable method of getting a telephone to dial, but what can you expect for the price?

One aspect of the operation of Enterprise I that particularly annoyed me was the so-called auto-answer facility which, more often than not, did not work. I have had this problem with several Voyager Ts, and I can only conclude that the problem is inherent in the design of the modem.

Having said this, all other aspects of the modems operation save fine, and I would conclude that if you are looking for a cheap (but mostly reliable) modem with dual speed operation, it would be a good idea to shop around for an Enterprise I.

Series Four Range

The Series Four range of modems from Pace Micro Technology consists of three models, and I looked at the 1200B, which is in the 'middle' of the range.

What you get for the price (and the price is quite a lot) is sophistication

with simplicity. Let me explain. The Series Four is one of the new breed of intelligent modems. That is, a lot of the work that is normally done by the micro/RSS232 interface/software is done by the modem itself. The modem has its own control program and central processing unit and is in effect a computer in its own right. Operation of the modem is done by sending it commands from the terminal software. These commands were developed by the Hayes company and are widely used throughout the industry.

The 1200B model reviewed can operate at 300/600, 1200/24, 75/1200 and 1200/1200 full duplex. It features auto-dial, auto-answer, auto-based rate detection/selection. Also included is a battery backed clock/calendar and the facility to store up to 64 phone numbers in its internal 'non-volatile' memory which is battery backed. The 1200B also features a full RSS232 port

with inline phone socket as well as a Centronics printer port and 20 segment full display with line strength indicator and speed buffering.

The modem shell is quite flat but takes up a large foot print on our work surface. The front panel consists of an LCD display with two touch-sensitive buttons that are used to manually select options (and the line status/line strength LEDs). At the rear of the modem is the power supply socket for the PSU which is a separate unit, the inline phone socket, the Centronics port and the only button on the whole machine the reset switch.

Interfacing the 1200B to your Commodore is also very easy. However, because the modem is intelligent, it can be used with practically any communications you care to name.

Simple Operation

Once connected to your micro the 1200B is easy to operate. Due to the way the modem is wired up to the micro the communications (such as Minitang) will think that the modem is online and go into normal mode after a few seconds. The reason for this is that the commands to operate the modem are entered from your keyboard while in terminal mode. To understand this better consider the following example: using the Minitang cartridge connected to the Series Four I would like to contact Telecom Gold at 1200 baud full duplex. I would select the terminal mode and to online by pressing return (even though I was not online). At this stage I would be greeted with a blank screen, but by entering 'AT' followed by RETURN the Series Four help

Table 1 - ENTERPRISE I RSS232 PIN OUTS

Pin No.	Function	Circuit
1	-	Data Ground
2	RA	Transmit Data
3	BB	Receive Data
4	CA	RTS
5	CD	CTS
6	CC	DSR
15	DB	Transmit Band Clock
17	DD	Receive Band Clock
20	CD	DTR
22	CE	Ring Detect
23	-	Data Division
25	-	Charger

screen would be displayed (Table 2). To enter Telecom Gold at 1200 full-duplex I would simply enter the following:

AND 501.1300

The rest would be answered by the modern dialing, detecting the answer, selecting the appropriate band rate and so on. Given if my terminal software can only operate at 800/9600 baud it is still possible to use services that operate at 1200 baud full-duplex because the Series Four has an internal memory buffer that keeps things in order. The final result is that the modem is very easy to use, and yet extremely powerful. Without a doubt, the Series Four is the Radio-Shack answer to modern modems.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Product: Airi Desuperheaters. **Supplier:** Desuperheaters Ltd, 22 Albion Square, Wotton, Peterborough PE2 0UP. Tel: 0753 24514. **Price:** £8000.

Product: Pace Series Four J2600.
Supplier: Pace, 92 New Cross Street,
Stratford SPO 6RS. Tel: 0174 488211.
Price: £399.

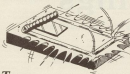
TABLE 2. *Continued*

A.T. Coombes and S.

- A: Answer call without delay
- C: Carrier control CO=ON, CI=ON
- D: Dist number and originate call
- E: Echo commands HI=OFF, EI=ON
- F: Echo data FI=ON, FI=OFF
- H: Hook control HO=ON, HI=OFF
- I: Display identity Is=0,1,2
- K: Display/exit time/Date Ex=0,1,2
- L: Speaker Loudness Lv=0,1,2,3
- M: Monitor status Ma=0,1,2
- N: Display/exit number store
- O: Go back On-line
- P: Pulse dialing ON
- Q: Result codes Q0=ON, Q1=OFF
- R: Reverse to answer after dialing
- S: Display/exit S registers
- T: Tone dialing On
- U: Unattended mode U0=OFF, U1=ON
- V: Result codes V0=German, V1=English
- W: Wait for secondary-dial tone
- X: Extended Result code X=0,1,2,3,4
- Z: Reset S Registers/commands

[illegible][illegible]

Super Mouse



A mouse can be a pest to use but Shazam's Mouse Plus offers a humane form of rodent control

By Norman Doyle

The Ness Mouse and Cheese package forms part of the built to last prospective buyers into acquiring the Commodore 64C package. As with any mousetrap there is a catch - since the mouse is plugged in, the keyboard responds in a most peculiar way. In the real world mice are rarely noticed and it would be good if their electronic counterparts acted in a similar way.

With the Mouse Plus, Shazam Systems offers a means of fulfilling this dream by providing a connector and associated software which allows the mouse to be attached to the user port instead of the joystick port. Connected in this way the software can then set up the necessary interrupts to allow the keyboard and mouse to be used in unison.

What's on the Disk

The disk provided with the adapter/connector contains five programs which adequately demonstrate the power of the module. The first program offers an Amiga-style set of pull-down menus, two of the others demonstrate the use of the mouse and a fourth is a program which can be incorporated in the user's own software.

The final program on the disk is a Cheese modifier which unfortunately only appears to work in conjunction with the disk version of the original program. The 64C package incorporates the cassette version of this menu-driven drawing program. After transferring the cassette version to disk, I attempted to incorporate the modifier but found it to be a fruitless experiment. The Newhouse program generator would not operate at all so I would like to see a cassette modifier included in future.

To return to the Amiga-style menu program, the master menu names are displayed across the top line of the display screen. By clicking onto one of these headings various useful utility programs can be called from the revealed pull-down menus.

Disk commands such as errors and directory display, search, rename, initialise, validate, load (machine code or Basic) and save can be selected without the need to resort to the usual complex Basic commands. Clicking onto an option often results in an action window opening at the

centre of the screen so that specific program details can be entered. When the operation has been completed, the original screen is restored.

The primary options gives a screen during Basic program (printout) and reset options. Utilities allows the recovery of a 'mouse' program and the appending or merging of two programs. Bender, screen, cursor or mouse pointer colours can be changed via the special menu options and the final menu simply displays the version data of the menu program in use.

The instructions give full details on how this rudimentary selection of utilities can be expanded with your own programs. This means that if a remarkable ability is considered essential in your programming needs you can patch it into the menu system and then use the whole system program to disk.

Colour Change

One of the first utilities that I would like to add to this system is an option to change the colour of the menu tabs. These are displayed in dark blue so, if this is also your favoured background colour, the menu becomes invisible until you move the pointer onto one of the options.

The two mouse programs, Mouse1 and its associated demo, graphically display the way in which the system can be used to great effect in your own software and there is a separate program, Mouse2, which has been created for your own use.

The Mouse Plus package certainly offers vastly improved and much needed control systems for the Ness Mouse and turns a novelty into a practical device which will enhance your software. Each value does not come cheaply but for £19.95 you not only get the disk and the connector but also the freedom to have your mouse permanently connected and ready for use with suitable software.

Developer

Producer: The Mouse Plus. **Supplier:** Shazam Systems, 8 Alan Close, Kemp PM, Woking, Surrey GU24 0AP. Tel 04597 55060. Price: £19.95. Return disk drive, Ness Mouse.



Listings

*Get it right first time with our deluxe program system
for the C64.*

You may have noticed that our listings are free of those horrible little black holes which send you searching around the keyboard for a suitable graphic symbol. You may also have noticed the funny numbers by the side of each line of the listing. First no more, it's all part of our easy entry aid.

Instead of those nasty graphics and rows of countless spaces in PRINT statements and strings we use a special coding system. The code, or mnemonic, is always contained in square brackets and you'll soon learn to decipher their meanings.

For example, [SA] would mean type in a Shifted A, or an use of spaces in layman's terms, and [BAH] would mean a row of ten of these symbols.

[S+Z] means hold down the shift key and press the plus key twice, it doesn't take a great leap of logic to realise that [C+Z] means exactly the same thing except that the Commodore key (bottom left of the keyboard) is held down instead of the shift key.

If more than two spaces appear in a statement then this will be printed as [SPC4] or, exceptionally, [SPPC6]. Translated into English this means press the spacebar four times or in the latter case hold the shift key down while you do it.

A string of special characters could appear as:
[CTRL N, DOWN2,LEFT3,BLUE, P3,C3]

This would be achieved by holding

down the CTRL key as you press N, press the cursor key down twice, the cursor left key five times, press the key marked BLUE while holding down the CTRL key, press the P3 key and, finally hold the Commodore key down while pressing the number two key (C2 would of course make the computer print in binary).

Always remember that you should only have a row of graphics characters on your screen with no square brackets and no commas, unless something like this appears:

[SS][C+]

In this case the two characters should have a comma between them.

On rare occasions [REV T] will appear in a listing. This is a delete symbol and is created by entering the line up to this mnemonic. Then type a closing quotation mark (SHIFT & 2) and delete it. This gets the computer out of quote mode. Hold down CTRL and press the number nine key ([K9ON]), type the relevant number of reversed T's and then hold down CTRL and press zero ([K9OFF]). Next type another quotation mark and delete it again. Now finish the line and press RETURN.

A list of these special cases is given in the table but remember that only one of these mnemonics will appear outside of a PRINT using the symbol for pi. This may appear when its value is needed in a calculation so this may look something like:

:(C)=3.1415927:

Ignore the square brackets and just type in a shifted upward pointing arrow (ie. the pi symbol).

Programmer's Edition 00000000

5 REM SYSTEM CHECKER - ERIC DOYLE

10 CL=10 : LA=70 : BA=40000

20 FOR L=0 TO CL:DO=L:FOR S=0 TO

10

30 READ A:IF A=0:PRINT"NO MORE DATA"

40 IF L=0:PRINT"LA="+LA:GOTO 100

50 CL=CL+A:DO=L:DO=L+S:GOTO 10

60 READ A:IF A=0:PRINT"NO MORE DATA"

70 IF L=0:PRINT"LA="+LA:GOTO 100

80 IF L=0:PRINT"LA="+LA:GOTO 100

90 CL=CL+A:DO=L:DO=L+S:GOTO 10

100 PRINT"LA="+LA:GOTO 100

110 PRINT"LA="+LA:GOTO 100

120 PRINT"LA="+LA:GOTO 100

130 PRINT"LA="+LA:GOTO 100

140 PRINT"LA="+LA:GOTO 100

150 PRINT"LA="+LA:GOTO 100

160 PRINT"LA="+LA:GOTO 100

170 PRINT"LA="+LA:GOTO 100

180 PRINT"LA="+LA:GOTO 100

190 PRINT"LA="+LA:GOTO 100

200 PRINT"LA="+LA:GOTO 100

210 PRINT"LA="+LA:GOTO 100

220 PRINT"LA="+LA:GOTO 100

230 PRINT"LA="+LA:GOTO 100

240 PRINT"LA="+LA:GOTO 100

250 PRINT"LA="+LA:GOTO 100

260 PRINT"LA="+LA:GOTO 100

270 PRINT"LA="+LA:GOTO 100

280 PRINT"LA="+LA:GOTO 100

290 PRINT"LA="+LA:GOTO 100

300 PRINT"LA="+LA:GOTO 100

310 PRINT"LA="+LA:GOTO 100

320 PRINT"LA="+LA:GOTO 100

330 PRINT"LA="+LA:GOTO 100

340 PRINT"LA="+LA:GOTO 100

350 PRINT"LA="+LA:GOTO 100

360 PRINT"LA="+LA:GOTO 100

370 PRINT"LA="+LA:GOTO 100

380 PRINT"LA="+LA:GOTO 100

390 PRINT"LA="+LA:GOTO 100

400 PRINT"LA="+LA:GOTO 100

410 PRINT"LA="+LA:GOTO 100

420 PRINT"LA="+LA:GOTO 100

430 PRINT"LA="+LA:GOTO 100

440 PRINT"LA="+LA:GOTO 100

450 PRINT"LA="+LA:GOTO 100

460 PRINT"LA="+LA:GOTO 100

470 PRINT"LA="+LA:GOTO 100

480 PRINT"LA="+LA:GOTO 100

490 PRINT"LA="+LA:GOTO 100

500 PRINT"LA="+LA:GOTO 100

510 PRINT"LA="+LA:GOTO 100

520 PRINT"LA="+LA:GOTO 100

530 PRINT"LA="+LA:GOTO 100

540 PRINT"LA="+LA:GOTO 100

550 PRINT"LA="+LA:GOTO 100

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630 PRINT"LA="+LA:GOTO 100

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660 PRINT"LA="+LA:GOTO 100

670 PRINT"LA="+LA:GOTO 100

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690 PRINT"LA="+LA:GOTO 100

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710 PRINT"LA="+LA:GOTO 100

720 PRINT"LA="+LA:GOTO 100

730 PRINT"LA="+LA:GOTO 100

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770 PRINT"LA="+LA:GOTO 100

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790 PRINT"LA="+LA:GOTO 100

800 PRINT"LA="+LA:GOTO 100

810 PRINT"LA="+LA:GOTO 100

820 PRINT"LA="+LA:GOTO 100

830 PRINT"LA="+LA:GOTO 100

840 PRINT"LA="+LA:GOTO 100

850 PRINT"LA="+LA:GOTO 100

860 PRINT"LA="+LA:GOTO 100

870 PRINT"LA="+LA:GOTO 100

880 PRINT"LA="+LA:GOTO 100

890 PRINT"LA="+LA:GOTO 100

900 PRINT"LA="+LA:GOTO 100

910 PRINT"LA="+LA:GOTO 100

920 PRINT"LA="+LA:GOTO 100

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970 PRINT"LA="+LA:GOTO 100

980 PRINT"LA="+LA:GOTO 100

990 PRINT"LA="+LA:GOTO 100

1000 PRINT"LA="+LA:GOTO 100

1010 PRINT"LA="+LA:GOTO 100

1020 PRINT"LA="+LA:GOTO 100

1030 PRINT"LA="+LA:GOTO 100

1040 PRINT"LA="+LA:GOTO 100

1050 PRINT"LA="+LA:GOTO 100

1060 PRINT"LA="+LA:GOTO 100

1070 PRINT"LA="+LA:GOTO 100

1080 PRINT"LA="+LA:GOTO 100

1090 PRINT"LA="+LA:GOTO 100

1100 PRINT"LA="+LA:GOTO 100

1110 PRINT"LA="+LA:GOTO 100

1120 PRINT"LA="+LA:GOTO 100

1130 PRINT"LA="+LA:GOTO 100

1140 PRINT"LA="+LA:GOTO 100

1150 PRINT"LA="+LA:GOTO 100

1160 PRINT"LA="+LA:GOTO 100

1170 PRINT"LA="+LA:GOTO 100

1180 PRINT"LA="+LA:GOTO 100

1190 PRINT"LA="+LA:GOTO 100

1200 PRINT"LA="+LA:GOTO 100

1210 PRINT"LA="+LA:GOTO 100

1220 PRINT"LA="+LA:GOTO 100

1230 PRINT"LA="+LA:GOTO 100

1240 PRINT"LA="+LA:GOTO 100

1250 PRINT"LA="+LA:GOTO 100

1260 PRINT"LA="+LA:GOTO 100

1270 PRINT"LA="+LA:GOTO 100

1280 PRINT"LA="+LA:GOTO 100

1290 PRINT"LA="+LA:GOTO 100

1300 PRINT"LA="+LA:GOTO 100

1310 PRINT"LA="+LA:GOTO 100

1320 PRINT"LA="+LA:GOTO 100

1330 PRINT"LA="+LA:GOTO 100

1340 PRINT"LA="+LA:GOTO 100

1350 PRINT"LA="+LA:GOTO 100

1360 PRINT"LA="+LA:GOTO 100

1370 PRINT"LA="+LA:GOTO 100

1380 PRINT"LA="+LA:GOTO 100

1390 PRINT"LA="+LA:GOTO 100

1400 PRINT"LA="+LA:GOTO 100

1410 PRINT"LA="+LA:GOTO 100

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1460 PRINT"LA="+LA:GOTO 100

1470 PRINT"LA="+LA:GOTO 100

1480 PRINT"LA="+LA:GOTO 100

1490 PRINT"LA="+LA:GOTO 100

1500 PRINT"LA="+LA:GOTO 100

1510 PRINT"LA="+LA:GOTO 100

1520 PRINT"LA="+LA:GOTO 100

1530 PRINT"LA="+LA:GOTO 100

1540 PRINT"LA="+LA:GOTO 100

1550 PRINT"LA="+LA:GOTO 100

1560 PRINT"LA="+LA:GOTO 100

1570 PRINT"LA="+LA:GOTO 100

1580 PRINT"LA="+LA:GOTO 100

1590 PRINT"LA="+LA:GOTO 100

1600 PRINT"LA="+LA:GOTO 100

1610 PRINT"LA="+LA:GOTO 100

1620 PRINT"LA="+LA:GOTO 100

1630 PRINT"LA="+LA:GOTO 100

1640 PRINT"LA="+LA:GOTO 100

1650 PRINT"LA="+LA:GOTO 100

1660 PRINT"LA="+LA:GOTO 100

1670 PRINT"LA="+LA:GOTO 100

1680 PRINT"LA="+LA:GOTO 100

1690 PRINT"LA="+LA:GOTO 100

1700 PRINT"LA="+LA:GOTO 100

1710 PRINT"LA="+LA:GOTO 100

1720 PRINT"LA="+LA:GOTO 100

1730 PRINT"LA="+LA:GOTO 100

1740 PRINT"LA="+LA:GOTO 100

1750 PRINT"LA="+LA:GOTO 100

1760 PRINT"LA="+LA:GOTO 100

1770 PRINT"LA="+LA:GOTO 100

1780 PRINT"LA="+LA:GOTO 100

1790 PRINT"LA="+LA:GOTO 100

1800 PRINT"LA="+LA:GOTO 100

1810 PRINT"LA="+LA:GOTO 100

1820 PRINT"LA="+LA:GOTO 100

1830 PRINT"LA="+LA:GOTO 100

1840 PRINT"LA="+LA:GOTO 100

1850 PRINT"LA="+LA:GOTO 100

1860 PRINT"LA="+LA:GOTO 100

1870 PRINT"LA="+LA:GOTO 100

1880 PRINT"LA="+LA:GOTO 100

1890 PRINT"LA="+LA:GOTO 100

1900 PRINT"LA="+LA:GOTO 100

1910 PRINT"LA="+LA:GOTO 100

1920 PRINT"LA="+LA:GOTO 100

1930 PRINT"LA="+LA:GOTO 100

1940 PRINT"LA="+LA:GOTO 100

1950 PRINT"LA="+LA:GOTO 100

1960 PRINT"LA="+LA:GOTO 100

1970 PRINT"LA="+LA:GOTO 100

1980 PRINT"LA="+LA:GOTO 100

1990 PRINT"LA="+LA:GOTO 100

2000 PRINT"LA="+LA:GOTO 100

2010 PRINT"LA="+LA:GOTO 100

2020 PRINT"LA="+LA:GOTO 100

2030 PRINT"LA="+LA:GOTO 100

2040 PRINT"LA="+LA:GOTO 100



egmtekl

Checksum Program

The hexadecimal numbers appearing in a column to the left of the listing should not be typed in with the program. These are merely checksum values and are there to help you get each line right. Don't worry if you don't understand the hexadecimal system, as long as you can compare two characters on the screen with the corresponding two characters in the magazine you can use our line checking program.

Type in the Checksum Program, make sure that you've not made any mistakes and save it to tape or disk

immediately because it will be used with most of the present and future listings appearing in Your Commodore.

At the start of each programming session, load Checksum and run it. The screen will turn brown with yellow characters and each time you type in a line and press the RETURN key a number will appear on the screen in white. This should be the same as the corresponding value in the magazine.

If the two values don't relate to one another, you have not copied the line exactly as printed so go back and check each character carefully. When you find the error simply correct it and

press RETURN again.

If you want to turn off the checksum simply type STOPH32 and the screen will return to the familiar blue colours. You can then do whatever it was you wanted to do and if this doesn't use the area where Checksum lets you can go back to it with the same STOP command.

Lower Case

Many of the listings are presented in lower case. To run your computer in lower case mode press the Commodore key and the SHIFT key at the same time.

TS

Mnemonic Symbol Keypress

[RIGHT]		CRSR left/right
[LEFT]		SHIFT & CRSR left/right
[DOWN]		CRSR up/down
[UP]		SHIFT & CRSR up/down
[F1]		F1 key
[F2]		SHIFT & F1 key
[F3]		F3 key
[F4]		SHIFT & F3 key
[F5]		F5 key
[F6]		SHIFT & F5 key
[F7]		F7 key
[F8]		SHIFT & F7 key
[HOME]		CLR/HOME
[CLR]		SHIFT & CLR/HOME
[RYSON]		CTRL & 4
[RYSOFF]		CTRL & 0

Mnemonic Symbol Keypress

[BLACK]		CTRL & 1
[WHITE]		CTRL & 2
[RED]		CTRL & 3
[CYAN]		CTRL & 4
[PURPLE]		CTRL & 5
[GREEN]		CTRL & 6
[BLUE]		CTRL & 7
[YELLOW]		CTRL & 8
[POUND]		£
[LARBOW]		←
[UPARROW]		↑
[P1]		SHIFT & 1
[INST]		SHIFT & INST/DEL
[REV T]		see text
[Cletter]		CRM + letter
[Sletter]		SHIFT + letter

Listings

Multi Dump

Program 1

```

10 REM MULTI-DUMP R/C LOADER
20 REM D.O.MILKINSON 1987
30 BL=37  :LW=70  :LW2=2540
40 FOR L=0 TO BL:CH=0:FOR D=0 TO 15
50 READ A$P:ASC=THEPRINT:PRINT:EXP=10:EXP2=L*EXP+D:STOP
60 CH=CH+1:POKE (BA+L)*256,D:SAVE IT 5
70 READ A$P:R5=CH:THEPRINT=EXP:EXP=EXP+L*EXP:STOP
90 NEXT L:END

95 DATA 0,0,0,0,0,0,175,60,71,97,49,27,56,33,27,31,716
100 DATA 23,27,43,1,173,3,133,144,193,141,33,3,148,207,141,21,1472
110 DATA 3,88,94,37,55,25,27,42,6,94,1,32,228,208,144,28,1996
120 DATA 141,128,266,173,257,269,248,8,32,34,308,76,207,209,27,50,2221
130 DATA 33,67,266,266,129,204,208,209,32,118,206,76,179,267,173,349,3444
140 DATA 288,141,3,221,173,213,204,208,34,173,263,207,133,254,173,39,2497
150 DATA 204,133,288,76,17,204,20,173,204,207,133,254,173,66,204,133,2302
160 DATA 288,149,128,141,154,204,173,208,207,204,8,149,192,141,154,204,2747
170 DATA 149,13,32,149,207,94,4,149,7,141,91,207,149,0,141,132,1743
180 DATA 207,174,6,206,208,8,149,32,32,148,207,262,204,248,32,157,2292
190 DATA 204,94,32,148,254,141,30,207,148,208,141,71,207,149,3,141,2204
200 DATA 71,207,149,0,141,132,207,32,187,204,173,94,267,133,254,173,2323
210 DATA 71,207,133,255,149,7,141,91,207,149,4,141,132,207,32,157,2123
220 DATA 204,94,208,142,0,189,232,208,32,148,207,232,234,2,204,248,2403
230 DATA 94,173,142,0,173,208,207,204,7,149,174,205,76,147,206,173,2431
240 DATA 189,173,203,32,148,207,232,234,8,208,232,56,173,149,48,141,2517
250 DATA 143,204,32,133,208,173,213,204,248,3,32,234,204,32,3,207,2244
260 DATA 32,132,207,24,173,232,208,208,2,149,0,101,254,133,234,148,2282
270 DATA 258,189,0,133,208,204,143,204,208,219,149,13,32,148,207,147,2489
280 DATA 10,32,148,207,94,173,148,0,173,254,133,232,132,232,24,4,2674
290 DATA 232,38,232,4,232,38,237,6,232,38,237,24,148,232,149,114,2306
300 DATA 208,132,232,173,24,208,43,2,244,7,148,232,24,148,8,133,1478
310 DATA 232,94,173,173,91,207,148,144,207,148,0,149,0,189,248,254,2542
320 DATA 232,204,6,208,248,173,232,204,248,7,32,32,207,76,34,207,2349
330 DATA 173,32,78,207,32,94,207,204,144,207,173,144,207,204,132,267,2479
340 DATA 18,207,94,173,148,1,141,32,207,43,204,132,1,177,262,72,1495
350 DATA 173,32,207,133,1,204,94,173,148,1,141,32,207,37,262,133,2687
360 DATA 1,177,254,72,173,32,207,133,1,204,94,173,148,0,10,72,1447
370 DATA 140,0,144,3,172,254,254,182,39,148,208,173,144,207,204,132,2272
380 DATA 267,248,7,172,255,207,208,1,74,74,187,148,248,104,232,234,2323
390 DATA 6,144,219,94,173,142,0,189,148,208,25,149,207,173,207,207,2443
400 DATA 268,122,189,144,208,32,148,207,189,148,208,32,148,207,232,234,2443
410 DATA 6,144,228,94,173,141,1,321,173,0,231,41,251,141,0,221,2040
420 DATA 149,14,44,15,221,240,201,173,0,221,9,141,0,221,94,1937
430 DATA 173,148,189,201,44,208,4,74,47,234,173,204,4,204,7,140,2128
440 DATA 1,142,0,244,38,173,201,5,208,7,140,0,142,0,244,20,2448
450 DATA 173,201,6,208,7,140,1,142,1,208,9,173,204,3,204,215,1734
460 DATA 140,0,142,1,144,252,207,142,212,208,76,207,207,0,0,0,1950

```

Program 2

```

10 REM MULTI-DUMP BY D.O.MILKINSON
20 REM COPYRIGHT OCTOBER 1987
40 FOR I=3200,2:POKE3200,I,3
50 PRINT "C:\dos\cmd.exe /c 15.4\MULTI-DUMP"
60 REMARK [chr]app=[PR]INT:[exp]IN:[EXP2]EXP2=[EXP]EXP2=[EXP]EXP2
70 PRINT "[exp7]D:[exp3]A:[exp4]EXP4:[exp5]EXP5:[exp]PRINT:END"
80 REMARK [chr]app=[PR]INT:[exp]IN:[EXP2]EXP2=[EXP]EXP2=[EXP]EXP2
90 PRINT "[exp4]D:[exp]EXP4:[exp]D:[exp]EXP4:[exp]EXP4:[exp]EXP4"
120 GOTO 32
140 PRINT "[chr]EXP5:[exp]EXP5:[exp]EXP5:[exp]EXP5:[exp]EXP5:[exp]EXP5"
150 GOTO 32

```



1

[illegible]

Share With Your Loved

RECEIVED 19 JUL 1994

The program is presented here as a single basic loader. Type it in using our (vax) C compiler and LINK.

When RUN the program will PAGE the machine code for MULTIBASE INTO memory and enter the editor.

Received 12 March 2008; accepted 20 November 2008; first published online 10 December 2008

MB. Instructions for entering the program have been modified since the test for this item was published. Ignore the entry instructions in the previous

[illegible]

```

0C 0 CLR
0D 7 CPMATCHED,dc(16)
0E 0 PENDING CLIP PLANE W/O.
0F 0 LAY-OUT. REVERSE
0G 1A 00000000000000000000000000000000

```

[illegible][illegible]

LİSTİNÇƏ

[illegible]

[illegible][illegible][illegible]

Age Group	Percentage (%)
18-24	15
25-34	85
35-44	75
45-54	65
55-64	55
65+	45



PROFESSOR: WOOD, 0010

LAW COLLEGE, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIF. 94720-1388, U.S.A.

LISTING 9

[illegible][illegible]

RECEIVED 1997 JAN 22

[illegible]

LISTINGS

[illegible][illegible][illegible]


```

0000 DATA 100,87,30,100,70,100,100,100
: 1000
0100 DATA 0,3,001,13,170,30,100,
0,100,00,00,100,10,70,00,00,100
0

```

```

0200 DATA 100,0,100,100,07,100,3
0,1,000,100,3,000,000,100,0,100,
1000

```

```

0300 DATA 1,0,100,0,100,100,0,0
00,000,000,0,0,000,000,100,1000
0100 DATA 0,100,000,07,100,00,0,
000,000,000,0,000,000,000,100,00
0000

```

```

0100 DATA 170,0,0,100,0,100,100,
07,000,0,0,000,000,000,0,100,17
07

```

```

0100 DATA 000,100,000,00,00,10,
7,000,000,000,000,000,000,000,000
0,1000,0010

```

```

0170 DATA 0,100,100,0,00,100,000
100,100,000,100,0,100,0,00,100,
1000

```

```

0000 DATA 000,00,000,000,000,00,
100,0,0,100,000,00,000,000,00,0
00,0000

```

```

0000 DATA 000,00,000,000,00,00,00,
000,000,000,000,000,000,000,000,
000,1000,1000

```

```

0000 DATA 0,100,000,0,00,100,000
100,100,00,00,00,0,100,0,00,100,
1000

```

```

0100 DATA 000,00,100,000,100,00,
100,0,00,000,000,000,000,10,00,0,0
0,0000

```

```

0000 DATA 000,100,00,00,00,00,0,0,
00,00,000,000,00,000,000,000,000,
00,0000

```

```

0000 DATA 000,000,000,10,70,100,
10,000,000,000,000,000,000,000,0,
0,100,0000

```

```

0000 DATA 07,10,0,00,10,00,00,1
00,17,100,00,00,100,10,00,000,0
0000

```

```

0000 DATA 10,000,00,00,00,00,00,0
00,00,00,71,70,00,00,10,0,1010
0000 DATA 100,0,100,00,100,00,00
000,000,000,000,000,000,000,000,
100,0000

```

```

0000 DATA 07,10,001,0,000,1,00,1
00,7,00,000,000,100,00,100,1,00
1000

```

```

0000 DATA 00,00,000,000,100,000,
0,100,00,00,000,000,70,000,000,0
00,0000

```

```

0000 DATA 1,100,00,00,70,00,00,0,
100,0,10,00,00,70,00,00,100,100
0

```

```

0000 DATA 0,00,100,000,100,3,100
100,000,70,100,000,000,10,100,
0000

```

```

0100 DATA 10,100,000,00,00,77,00,
70,00,00,00,00,00,00,00,100,0
0000

```

```

0000 DATA 00,00,00,00,00,00,00,0
0,00,10,00,07,01,00,000,00,0000
0000 DATA 77,00,00,00,00,00,70,7
0,00,00,70,00,00,00,10,1000

```

```

0000 DATA 10,0,000,0,100,0,00,
100,100,0,0,000,000,000,000,100,
1000

```

```

0000 DATA 110,100,00,70,100,10,0
00,000,000,000,000,000,000,000,0
00,70,0,0000

```

```

0000 DATA 07,10,001,0,000,1,00,1
00,3,00,000,000,100,0,100,00,10
00

```

```

0000 DATA 100,00,000,000,000,000,
0,100,100,000,000,0,70,000,000,0
00,0000

```

```

0000 DATA 010,000,70,010,00,000,
000,000,000,000,000,000,000,000,
000,000,000

```

PROGRAM: BOOT-LOADER

```

10 FOR I=1000 TO 1000
20 READ B:PRINT B
30 NEXT I
40 FOR I=10,10,000:FOR J=1,0:FOR K=70,70
50 NEXT K
60 DATA 100,000,000,00,00,00,100,100
70 DATA 100,100,00,110,0,00,000
80 DATA 000,000,0,0,00,000,00,00
90 DATA 100,100,00,100,0,000,0
100 DATA 000,00,00,000,000,00,000
110 DATA 000,00,00,100

```

Label Linker



PROGRAM: BOOT-LOADER

```

50 POKE 000,"BOOT-LOADER"
60 BEEP
70 POKE 000,"0000",0
80 POKE 000,"0000",0,00000000
90 RUN "BASICLOADER"

```

PROGRAM: DISPLAYBOX

```

10 IF PEEK(00000) < 10 & 04 THEN
20 RUN "BOOT-LOADER"
30 BEEP:GOTO 10
40 COLOR 0,3:COLOR 9,3:COLOR 0,0
50 PRINT:GOTO 10000000
60
60 PRINT
--
60 PRINT "*****"
70 GOTO 0
80 GOTO 0
90 GOTO 0
100 GOTO 0
110 IF 00 = 0 THEN BEGIN
120 GOTO 00000000
130 GOTO 00000000
140 GOTO 00000000
150 GOTO 00000000
160 GOTO 00000000
170 GOTO 00000000
180 GOTO 00000000
190 GOTO 00000000
200 GOTO 00000000
210 GOTO 00000000
220 GOTO 00000000
230 GOTO 00000000
240 GOTO 00000000
250 GOTO 00000000
260 GOTO 00000000
270 GOTO 00000000
280 GOTO 00000000
290 GOTO 00000000
300 GOTO 00000000
310 GOTO 00000000
320 GOTO 00000000
330 GOTO 00000000
340 GOTO 00000000
350 GOTO 00000000
360 GOTO 00000000
370 GOTO 00000000
380 GOTO 00000000
390 GOTO 00000000
400 GOTO 00000000
410 GOTO 00000000
420 GOTO 00000000
430 GOTO 00000000
440 GOTO 00000000
450 GOTO 00000000
460 GOTO 00000000
470 GOTO 00000000
480 GOTO 00000000
490 GOTO 00000000
500 GOTO 00000000
510 GOTO 00000000
520 GOTO 00000000
530 GOTO 00000000
540 GOTO 00000000
550 GOTO 00000000
560 GOTO 00000000
570 GOTO 00000000
580 GOTO 00000000
590 GOTO 00000000
600 GOTO 00000000
610 GOTO 00000000
620 GOTO 00000000
630 GOTO 00000000
640 GOTO 00000000
650 GOTO 00000000
660 GOTO 00000000
670 GOTO 00000000
680 GOTO 00000000
690 GOTO 00000000
700 GOTO 00000000
710 GOTO 00000000
720 GOTO 00000000
730 GOTO 00000000
740 GOTO 00000000
750 GOTO 00000000
760 GOTO 00000000
770 GOTO 00000000
780 GOTO 00000000
790 GOTO 00000000
800 GOTO 00000000
810 GOTO 00000000
820 GOTO 00000000
830 GOTO 00000000
840 GOTO 00000000
850 GOTO 00000000
860 GOTO 00000000
870 GOTO 00000000
880 GOTO 00000000
890 GOTO 00000000
900 GOTO 00000000
910 GOTO 00000000
920 GOTO 00000000
930 GOTO 00000000
940 GOTO 00000000
950 GOTO 00000000
960 GOTO 00000000
970 GOTO 00000000
980 GOTO 00000000
990 GOTO 00000000

```

```

000 DATA 00,00,00,00,00,00,00,00
-0000
0100 DATA 00,000,00,00,70,07,00,0
00,-0000
0200 DATA 70,70,70,000,00,10,00,00
-0000
0300 DATA 00,00,00,00,00,00,00,000
-0000
0400 DATA 00,00,70,0,00,000,00,10
-0000
0500 DATA 10,100,00,00,00,70,07,0
0,-0000
0600 DATA 00,00,00,00,00,00,00,00
-0000
0700 DATA 00,00,00,00,00,00,00,00
-0000
0800 DATA 00,00,00,00,00,00,00,00
-0000
0900 DATA 00,00,00,00,00,00,00,00
-0000
1000 DATA 00,00,00,00,00,00,00,00
-0000
1100 DATA 00,00,00,00,00,00,00,00
-0000
1200 DATA 00,00,00,00,00,00,00,00
-0000
1300 DATA 00,00,00,00,00,00,00,00
-0000
1400 DATA 00,00,00,00,00,00,00,00
-0000
1500 DATA 00,00,00,00,00,00,00,00
-0000
1600 DATA 00,00,00,00,00,00,00,00
-0000
1700 DATA 00,00,00,00,00,00,00,00
-0000
1800 DATA 00,00,00,00,00,00,00,00
-0000
1900 DATA 00,00,00,00,00,00,00,00
-0000
2000 DATA 00,00,00,00,00,00,00,00
-0000
2100 DATA 00,00,00,00,00,00,00,00
-0000
2200 DATA 00,00,00,00,00,00,00,00
-0000
2300 DATA 00,00,00,00,00,00,00,00
-0000
2400 DATA 00,00,00,00,00,00,00,00
-0000
2500 DATA 00,00,00,00,00,00,00,00
-0000
2600 DATA 00,00,00,00,00,00,00,00
-0000
2700 DATA 00,00,00,00,00,00,00,00
-0000
2800 DATA 00,00,00,00,00,00,00,00
-0000
2900 DATA 00,00,00,00,00,00,00,00
-0000
3000 DATA 00,00,00,00,00,00,00,00
-0000
3100 DATA 00,00,00,00,00,00,00,00
-0000
3200 DATA 00,00,00,00,00,00,00,00
-0000
3300 DATA 00,00,00,00,00,00,00,00
-0000
3400 DATA 00,00,00,00,00,00,00,00
-0000
3500 DATA 00,00,00,00,00,00,00,00
-0000
3600 DATA 00,00,00,00,00,00,00,00
-0000
3700 DATA 00,00,00,00,00,00,00,00
-0000
3800 DATA 00,00,00,00,00,00,00,00
-0000
3900 DATA 00,00,00,00,00,00,00,00
-0000
4000 DATA 00,00,00,00,00,00,00,00
-0000
4100 DATA 00,00,00,00,00,00,00,00
-0000
4200 DATA 00,00,00,00,00,00,00,00
-0000
4300 DATA 00,00,00,00,00,00,00,00
-0000
4400 DATA 00,00,00,00,00,00,00,00
-0000
4500 DATA 00,00,00,00,00,00,00,00
-0000
4600 DATA 00,00,00,00,00,00,00,00
-0000
4700 DATA 00,00,00,00,00,00,00,00
-0000
4800 DATA 00,00,00,00,00,00,00,00
-0000
4900 DATA 00,00,00,00,00,00,00,00
-0000
5000 DATA 00,00,00,00,00,00,00,00
-0000
5100 DATA 00,00,00,00,00,00,00,00
-0000
5200 DATA 00,00,00,00,00,00,00,00
-0000
5300 DATA 00,00,00,00,00,00,00,00
-0000
5400 DATA 00,00,00,00,00,00,00,00
-0000
5500 DATA 00,00,00,00,00,00,00,00
-0000
5600 DATA 00,00,00,00,00,00,00,00
-0000
5700 DATA 00,00,00,00,00,00,00,00
-0000
5800 DATA 00,00,00,00,00,00,00,00
-0000
5900 DATA 00,00,00,00,00,00,00,00
-0000
6000 DATA 00,00,00,00,00,00,00,00
-0000
6100 DATA 00,00,00,00,00,00,00,00
-0000
6200 DATA 00,00,00,00,00,00,00,00
-0000
6300 DATA 00,00,00,00,00,00,00,00
-0000
6400 DATA 00,00,00,00,00,00,00,00
-0000
6500 DATA 00,00,00,00,00,00,00,00
-0000
6600 DATA 00,00,00,00,00,00,00,00
-0000
6700 DATA 00,00,00,00,00,00,00,00
-0000
6800 DATA 00,00,00,00,00,00,00,00
-0000
6900 DATA 00,00,00,00,00,00,00,00
-0000
7000 DATA 00,00,00,00,00,00,00,00
-0000
7100 DATA 00,00,00,00,00,00,00,00
-0000
7200 DATA 00,00,00,00,00,00,00,00
-0000
7300 DATA 00,00,00,00,00,00,00,00
-0000
7400 DATA 00,00,00,00,00,00,00,00
-0000
7500 DATA 00,00,00,00,00,00,00,00
-0000
7600 DATA 00,00,00,00,00,00,00,00
-0000
7700 DATA 00,00,00,00,00,00,00,00
-0000
7800 DATA 00,00,00,00,00,00,00,00
-0000
7900 DATA 00,00,00,00,00,00,00,00
-0000
8000 DATA 00,00,00,00,00,00,00,00
-0000
8100 DATA 00,00,00,00,00,00,00,00
-0000
8200 DATA 00,00,00,00,00,00,00,00
-0000
8300 DATA 00,00,00,00,00,00,00,00
-0000
8400 DATA 00,00,00,00,00,00,00,00
-0000
8500 DATA 00,00,00,00,00,00,00,00
-0000
8600 DATA 00,00,00,00,00,00,00,00
-0000
8700 DATA 00,00,00,00,00,00,00,00
-0000
8800 DATA 00,00,00,00,00,00,00,00
-0000
8900 DATA 00,00,00,00,00,00,00,00
-0000
9000 DATA 00,00,00,00,00,00,00,00
-0000
9100 DATA 00,00,00,00,00,00,00,00
-0000
9200 DATA 00,00,00,00,00,00,00,00
-0000
9300 DATA 00,00,00,00,00,00,00,00
-0000
9400 DATA 00,00,00,00,00,00,00,00
-0000
9500 DATA 00,00,00,00,00,00,00,00
-0000
9600 DATA 00,00,00,00,00,00,00,00
-0000
9700 DATA 00,00,00,00,00,00,00,00
-0000
9800 DATA 00,00,00,00,00,00,00,00
-0000
9900 DATA 00,00,00,00,00,00,00,00
-0000

```


LISTINGS

8490 DATA 573,149,37,888,38,173,3
7,32,-1827
8500 DATA 83,37,78,78,38,174,3,78
1,-73
8510 DATA 57,98,173,3,31,188,17,8
78,-888
8520 DATA 251,188,188,141,37,141,3
3,3,-183
8530 DATA 173,4,41,888,148,888,38
3,182,-1825
8540 DATA 38,141,4,31,38,13,38,18
8,-887
8550 DATA 8,177,881,888,31,188,18
1,141,-1888
8560 DATA 188,37,188,38,148,148,3
7,388,-881
8570 DATA 8,38,143,37,88,888,3,13
3,-888
8580 DATA 48,888,38,143,37,888,8,
133,-887
8590 DATA 48,78,48,33,38,818,38,5
47,-888
8600 DATA 13,13,188,88,88,83,83,3
8,-887
8610 DATA 48,38,83,88,88,88,88,88
8,-888
8620 DATA 88,13,8,38,188,41,38,18
3,-718
8630 DATA 48,173,8,31,133,48,741,
1,188,-188
8640 DATA 37,173,1,31,133,48,741,
1,188,-188
8650 DATA 37,38,48,38,188,1,141,7
1,-888
8660 DATA 38,38,48,38,888,3,8,48,8
3,-882
8670 DATA 881,143,888,888,38,78,3
3,188,-1874
8680 DATA 38,881,38,888,888,38,78
38,-887
8690 DATA 878,878,888,38,188,888,3
3,387,-1888
8700 DATA 188,888,8,888,8,78,888,4
7,-788
8710 DATA 884,17,144,3,78,888,88,
38,-788
8720 DATA 88,38,888,888,78,41,78,
188,-887
8730 DATA 1,141,7,38,78,818,38,38
1,-888
8740 DATA 888,41,38,888,38,13,13,
188,-887
8750 DATA 88,88,88,88,38,38,38,88
1,-888
8760 DATA 871,88,888,88,88,13,8,
188
8770 DATA 38,888,41,38,187,41,188,
188,-888
8780 DATA 141,138,37,388,88,141,3
78,37,-888
8790 DATA 38,48,38,188,1,141,7,38
1,-888
8800 DATA 38,58,38,881,8,888,141,
38,-788
8810 DATA 888,88,174,888,173,188,3
7,141,-888
8820 DATA 81,31,173,148,37,141,88
1,31,-888
8830 DATA 38,78,38,888,3,78,138,4
3,-887
8840 DATA 888,38,88,888,888,38,1,
78,18,-1887
8850 DATA 173,81,31,141,1388,37,1
73,88,-787
8860 DATA 38,141,178,37,78,78,38
1,888,-788
8870 DATA 8,141,88,31,88,188,38,
38,-888
8880 DATA 888,38,88,88,78,78,88,
13,18,-888
8890 DATA 8,188,188,188,888,3,88
8,78,-888

1890 DATA 141,888,3,188,38,38,88,
1,38,-887
1900 DATA 78,188,88,888,888,888,
88,173,-888
1910 DATA 8,31,88,888,4,841,138,
37,-888
1920 DATA 173,38,31,888,8,141,14
8,7,-788
1930 DATA 78,88,38,78,888,88,188,
48,-888
1940 DATA 88,888,1,148,137,37,18
8,48,-888
1950 DATA 888,8,141,138,37,188,8,
1,182,-888
1960 DATA 38,173,37,38,1,78,38,8
18,-888
1970 DATA 38,13,13,188,888,88,78
71,-887
1980 DATA 88,88,77,38,78,78,78,7
38,-888
1990 DATA 88,88,38,88,78,88,38,8
7,-788
2000 DATA 78,78,88,88,88,88,8,8
8,-888
2010 DATA 13,13,88,88,88,88,8,3
8,-781
2020 DATA 88,78,38,88,88,88,77,7
3,-781
2030 DATA 78,88,38,88,78,88,38,8
3,-888
2040 DATA 88,88,88,88,88,88,8,8
8,-888
2050 DATA 13,13,783,8,38,818,41,
188,-888
2060 DATA 88,141,8,3,188,77,141,
1,-888
2070 DATA 3,188,8,133,888,38,388
38,-788
2080 DATA 188,7,888,88,38,187,8,
8,-888
2090 DATA 888,18,887,78,8,8,188,
8,-788
2100 DATA 141,8,888,78,88,77,148
12,-788
2110 DATA 31,888,138,37,888,3,88
8,148,-888
2120 DATA 37,188,8,38,148,37,38,
178,-888
2130 DATA 17,38,188,38,38,188,38
144,-887
2140 DATA 1,88,173,188,38,188,18
178,-788
2150 DATA 881,888,138,188,188,31
178,888,-1888
2160 DATA 138,188,888,38,88,77,18
8,17,-788
2170 DATA 173,8,31,888,881,888,1
73,88,-888
2180 DATA 38,148,888,188,8,188,1
3,178,-888
2190 DATA 881,38,13,38,188,8,888
888,38,-1888
2200 DATA 178,188,38,188,177,888
877,188,-1881
2210 DATA 38,888,8,138,18,888,88
88,-788
2220 DATA 38,13,38,188,8,177,888
888,-888
2230 DATA 888,88,888,88,88,78,
38,-888
2240 DATA 888,18,888,38,188,38,1
82,188,-1888
2250 DATA 38,888,888,17,144,888,
78,888,-1877
2260 DATA 38,888,1,141,7,38,188,
188,-888
2270 DATA 38,88,188,1,133,188,18
8,38,-788

2280 DATA 877,881,133,188,188,8,
133,188,-1888
2290 DATA 888,1,133,188,188,8,13
3,188,-1888
2300 DATA 133,187,188,18,177,888
133,183,-1818
2310 DATA 888,881,133,187,188,88
8,133,188,-1874
2320 DATA 888,18,188,1,188,881,3
8,288,-887
2330 DATA 88,187,8,78,78,88,8,7
3,-888
2340 DATA 78,71,38,188,8,38,888,
78,-887
2350 DATA 188,8,188,78,188,98,38
34,-888
2360 DATA 88,88,38,88,88,888,888
133,-888
2370 DATA 8,188,88,188,4,88,888
18,-781
2380 DATA 88,87,88,88,138,8,138,
7,-881
2390 DATA 188,8,8,188,138,8,188,
8,-888
2400 DATA 138,8,88,188,5,78,188,
8,-888
2410 DATA 188,7,888,8,78,88,38,1
8,-888
2420 DATA 41,38,818,88,147,144,1
3,18,-888
2430 DATA 188,88,78,88,77,88,8
8,-888
2440 DATA 88,8,88,188,88,38,18,
38,-888
2450 DATA 44,48,38,8,188,188,141,
1,182,-887
2460 DATA 3,188,38,141,888,3,188,
3,-783
2470 DATA 188,13,187,74,3,888,18
888,-888
2480 DATA 188,8,133,888,188,3,18
3,4,-888
2490 DATA 188,88,133,3,188,8,133
8,-888
2500 DATA 188,8,141,888,3,78,887
8,-888
2510 DATA 38,888,41,188,188,38,8
81,38,-888
2520 DATA 884,188,88,888,1,78,78
88,-888
2530 DATA 38,78,188,78,138,78,38,
3,8,-788
2540 DATA 141,88,37,173,3,38,141,
13,-888
2550 DATA 38,173,7,31,188,17,38,
188,-887
2560 DATA 8,188,8,141,81,37,173,
13,-888
2570 DATA 38,888,18,37,141,38
38,-888
2580 DATA 173,88,81,888,11,37,88
1,88,-888
2590 DATA 38,144,18,888,81,37,37
3,38,-887
2600 DATA 38,141,13,31,173,38,38,
171,-887
2610 DATA 14,38,78,188,38,173,81,
37,-888
2620 DATA 13,88,37,74,88,37,888
88,-881
2630 DATA 173,81,37,74,188,48,38,
881,-881
2640 DATA 38,888,888,18,888,184,
178,881,-888
2650 DATA 188,188,88,8,1,8,38,8,
18,-888
2660 DATA 188,3,888,38,188,8,78,
78,-887
2670 DATA 188,78,188,8,141,74,13
7,182,-888
2680 DATA 148,37,173,8,31,141,13
7,37,-888

LISTINGS

18070 DATA 173,1,31,140,130,37,12 9,137,-0001	18070 DATA 141,200,8,300,30,141,2 30,8,-0000	18070 DATA 140,120,37,170,30,31,1 71,140,-0010
18080 DATA 37,80,100,4,141,130,37, 173,-0000	18080 DATA 100,171,170,800,0,70,0, 3,171,-0010	18080 DATA 37,173,8,30,171,3,31,1 73,-0001
18090 DATA 130,37,100,0,141,140,3 7,100,-0000	18090 DATA 80,800,40,800,10,170,3 0,0,-0000	18090 DATA 0,31,140,4,30,30,100,3 0,-0000
18100 DATA 0,30,170,37,870,0,30,1 00,-0000	18100 DATA 100,74,170,870,0,100,1 70,170,-1000	18100 DATA 100,30,30,170,30,70,30 0,70,-0000
18110 DATA 37,70,00,37,30,100,37, 173,-0000	18110 DATA 100,74,170,870,0,100,1 70,170,-1000	18110 DATA 30,170,70,170,30,31,0 0,0,-0000
18120 DATA 130,37,30,173,37,170,1 00,37,-0000	18120 DATA 100,74,170,870,0,100,1 70,170,-1000	18120 DATA 70,100,40,70,00,11,170 130,-0000
18130 DATA 100,30,170,37,130,100, 171,37,-0000	18130 DATA 100,74,170,870,0,100,1 70,170,-1000	18130 DATA 37,100,00,30,170,170,3 7,171,-0001
18140 DATA 100,3,100,170,37,173,1 00,37,-0000	18140 DATA 100,74,170,870,0,100,1 70,170,-1000	18140 DATA 00,31,170,3,70,100,40, 30,-0000
18150 DATA 141,137,37,173,170,37, 171,130,-0001	18150 DATA 100,74,170,870,0,100,1 70,170,-1000	18150 DATA 70,100,100,3,70,100,100, 001,-0000
18160 DATA 37,30,140,37,100,100,0 00,30,-0000	18160 DATA 100,74,170,870,0,100,1 70,170,-1000	18160 DATA 30,100,070,001,30,070, 10,170,-0000
18170 DATA 170,37,100,170,100,100, 100,30,-1000	18170 DATA 100,74,170,870,0,100,1 70,170,-1000	18170 DATA 01,31,130,37,170,0 0,30,-0000
18180 DATA 070,130,37,000,0,000,0, 00,37,-1000	18180 DATA 100,74,170,870,0,100,1 70,170,-1000	18180 DATA 171,170,37,70,100,40,3 0,100,-0000
18190 DATA 00,000,0,000,0,000,0,1 73,-1000	18190 DATA 100,74,170,870,0,100,1 70,170,-1000	18190 DATA 30,000,0,000,0,70,000, 70,-0000
18200 DATA 130,37,130,000,170,140 37,130,-1000	18200 DATA 100,74,170,870,0,100,1 70,170,-1000	18200 DATA 000,17,170,1,70,000,70 70,-0000
18210 DATA 000,170,10,30,170,00,3 1,100,-0000	18210 DATA 100,74,170,870,0,100,1 70,170,-1000	18210 DATA 100,30,170,3,70,00,70, 100,-0000
18220 DATA 000,171,170,0,30,100,0 170,-0000	18220 DATA 100,74,170,870,0,100,1 70,170,-1000	18220 DATA 17,177,001,141,3,30,00 0,177,-0000
18230 DATA 10,30,70,100,00,140,30, 30,-0000	18230 DATA 100,74,170,870,0,100,1 70,170,-1000	18230 DATA 001,170,1,31,100,30,30 170,-0001
18240 DATA 170,137,37,170,000,170, 100,37,-0000	18240 DATA 100,74,170,870,0,100,1 70,170,-1000	18240 DATA 30,30,100,00,100,0,170 170,-0000
18250 DATA 170,070,100,000,100,10 0,0,170,-0000	18250 DATA 100,74,170,870,0,100,1 70,170,-1000	18250 DATA 30,000,10,30,70,30,000 10,-0000
18260 DATA 000,171,30,170,0,170,10 30,-0000	18260 DATA 100,74,170,870,0,100,1 70,170,-1000	18260 DATA 001,000,000,000,001,70, 070,000,-0000
18270 DATA 000,10,10,100,0,30,000, 100,-0000	18270 DATA 100,74,170,870,0,100,1 70,170,-1000	18270 DATA 00,000,30,70,000,30,10 0,10,-0000
18280 DATA 100,30,30,100,70,001,1 0,170,-0001	18280 DATA 100,74,170,870,0,100,1 70,170,-1000	18280 DATA 00,000,30,000,1,100,7 01,-0000
18290 DATA 17,04,100,0,31,100,0,3 1,-0000	18290 DATA 100,74,170,870,0,100,1 70,170,-1000	18290 DATA 000,0,000,140,37,00,10 0,0,-0000
18300 DATA 000,000,10,017,00,100, 00,171,-0000	18300 DATA 100,74,170,870,0,100,1 70,170,-1000	18300 DATA 100,0,31,170,7,30,070, 00,-0000
18310 DATA 137,37,100,000,170,100, 37,100,-0000	18310 DATA 100,74,170,870,0,100,1 70,170,-1000	18310 DATA 000,3,30,140,37,140,0, 30,-0000
18320 DATA 0,170,00,31,140,04,30, 100,-0001	18320 DATA 100,74,170,870,0,100,1 70,170,-1000	18320 DATA 000,30,170,37,141,0,31, 170,-0000
18330 DATA 0,100,0,30,170,37,000, 00,-0000	18330 DATA 100,74,170,870,0,100,1 70,170,-1000	18330 DATA 100,37,04,100,0,141,0, 31,-0000
18340 DATA 170,37,100,00,170,00,30, 3,30,-0000	18340 DATA 100,74,170,870,0,100,1 70,170,-1000	18340 DATA 170,100,37,100,0,101,1 0,30,-0000
18350 DATA 130,30,100,74,30,000,3 0,100,-0001	18350 DATA 100,74,170,870,0,100,1 70,170,-1000	18350 DATA 100,0,170,100,37,70,10 0,7,-0000
18360 DATA 00,000,0,170,137,37,14 0,0,100,-0000	18360 DATA 100,74,170,870,0,100,1 70,170,-1000	18360 DATA 140,100,37,170,140,37, 100,0,-0000
18370 DATA 3,100,10,140,130,37,14 0,1,-0000	18370 DATA 100,74,170,870,0,100,1 70,170,-1000	18370 DATA 101,100,37,100,0,140,7 0,30,-0000
18380 DATA 3,100,00,00,30,170,37, 130,-0000	18380 DATA 100,74,170,870,0,100,1 70,170,-1000	18380 DATA 00,70,30,000,00,001,0, 000,-0000
18390 DATA 10,070,100,0,100,0,31, 000,-0000	18390 DATA 100,74,170,870,0,100,1 70,170,-1000	18390 DATA 10,170,0,31,70,000,140, 0,70,-0000
18400 DATA 100,0,30,170,000,0,3, 070,-0000	18400 DATA 100,74,170,870,0,100,1 70,170,-1000	18400 DATA 10,30,170,10,30,000,11 30,-0000
18410 DATA 34,170,000,0,100,0,170, 000,-1000	18410 DATA 100,74,170,870,0,100,1 70,170,-1000	18410 DATA 000,00,100,0,100,0,30, 100,-0000
18420 DATA 3,100,0,100,100,1,10,0, 130,-0000	18420 DATA 100,74,170,870,0,100,1 70,170,-1000	18420 DATA 000,10,30,100,100,100, 100,000,-1000
18430 DATA 7,100,10,140,100,0,10 0,70,-0001	18430 DATA 100,74,170,870,0,100,1 70,170,-1000	18430 DATA 100,000,101,170,0,100, 0,101,-0000
18440 DATA 3,100,00,00,30,170,37, 130,-0000	18440 DATA 100,74,170,870,0,100,1 70,170,-1000	18440 DATA 10,30,170,10,30,000,11 30,-0000
18450 DATA 10,070,100,0,100,0,31, 000,-0000	18450 DATA 100,74,170,870,0,100,1 70,170,-1000	18450 DATA 000,00,100,0,100,0,30, 100,-0000
18460 DATA 100,0,30,170,000,0,3, 070,-0000	18460 DATA 100,74,170,870,0,100,1 70,170,-1000	18460 DATA 000,10,30,100,100,100, 100,000,-1000
18470 DATA 34,170,000,0,100,0,170, 000,-1000	18470 DATA 100,74,170,870,0,100,1 70,170,-1000	18470 DATA 100,0,30,100,0,30,07,0 1,-0000
18480 DATA 141,000,0,100,170,171, 070,0,-0000	18480 DATA 100,74,170,870,0,100,1 70,170,-1000	18480 DATA 000,100,170,0,30,001,0 0,70,-0000
18490 DATA 70,007,0,000,000,3,100, 0,-0000	18490 DATA 100,74,170,870,0,100,1 70,170,-1000	18490 DATA 000,00,000,000,100,00,0 0,10,-0000

LISTINGS

31000	DATA	11.143,11.31.0000,11.30.0000	31010	DATA	30.04,30.03,01,30,30,7	31020	DATA	30,70,71,70,00,00,00,0
31001	-0000		31011	-0000		31021	-0001	
31002	DATA	11.31.1000,0,100,000,0	31012	DATA	73,70,00,00,00,70,70,0	31022	DATA	000,000,00,00,70,00,00,0
31003	-0000		31013	-0000		31023	-0000	
31004	DATA	1200,0000,0000,100,00,00	31014	DATA	00,70,77,00,70,000,00,0	31024	DATA	00,70,70,70,70,12,77,00,0
31005	-0000		31015	-0000		31025	-0000	
31006	DATA	11.31.0000,11.31.0000,11.31.0000	31016	DATA	00,00,00,70,71,00,00,0,7	31026	DATA	77,70,00,00,00,0,70,01
31007	-0000		31017	-0000		31027	-0000	
31008	DATA	0000,0000,000,000,1000,70	31018	DATA	70,11,00,70,00,00,70,0	31028	DATA	000,000,0,70,1000,70,0
31009	-0000		31019	-0000		31029	-0000	
31010	DATA	1000,100,0000,100,70,0000	31020	DATA	00,00,70,00,00,70,70,0	31030	DATA	000,0,00,00,00,00,00,0
31011	-0000		31021	-0000		31031	-0000	
31012	DATA	0000,0000,0,000,000,000,0	31022	DATA	73,70,00,00,0,70,01,00	31032	DATA	000,0,000,0,70,70,70,0
31013	-0000		31023	-0000		31033	-0000	
31014	DATA	00,000,00,000,00,000,000	31024	DATA	000,000,000,00,00,0,0	31034	DATA	000,000,00,000,0,00,0,0
31015	-0000		31025	-0000		31035	-0000	
31016	DATA	0000,00,000,000,000,00,000	31026	DATA	13,13,100,70,70,00,00	31036	DATA	70,00,77,00,00,00,00,1
31017	-0000		31027	-0000		31037	-0000	
31018	DATA	00,000,00,000,00,000,000	31028	DATA	70,00,00,70,00,00,00,0	31038	DATA	00,00,00,00,00,00,00,0
31019	-0000		31029	-0000		31039	-0000	
31020	DATA	00,00,70,70,71,100,70,70	31030	DATA	000,00,70,00,00,00,00,0	31040	DATA	00,00,00,00,00,00,00,0
31021	-0000		31031	-0000		31041	-0000	
31022	DATA	000,01,70,100,70,100,70	31032	DATA	00,00,00,00,00,00,00,0	31042	DATA	00,00,00,00,00,00,00,0
31023	-0000		31033	-0000		31043	-0000	
31024	DATA	000,00,00,00,00,00,00,00	31034	DATA	00,00,00,00,00,00,00,0	31044	DATA	00,00,00,00,00,00,00,0
31025	-0000		31035	-0000		31045	-0000	
31026	DATA	00,100,0,100,000,00,000	31036	DATA	00,00,00,00,00,00,00,0	31046	DATA	00,00,00,00,00,00,00,0
31027	-0000		31037	-0000		31047	-0000	
31028	DATA	0000,000,100,100,100,100	31038	DATA	100,00,10,00,70,00,00	31048	DATA	100,00,10,00,70,00,00
31029	-0000		31039	-0000		31049	-0000	
31030	DATA	0000,000,000,000,000,000	31040	DATA	73,70,00,00,00,00,00,0	31050	DATA	00,00,00,00,00,00,00,0
31031	-0000		31041	-0000		31051	-0000	
31032	DATA	00,00,70,70,71,100,70,70	31042	DATA	00,70,70,70,70,00,00,0	31052	DATA	00,00,00,00,00,00,00,0
31033	-0000		31043	-0000		31053	-0000	
31034	DATA	00,00,00,00,00,00,00,00	31044	DATA	00,00,00,00,00,00,00,0	31054	DATA	00,00,00,00,00,00,00,0
31035	-0000		31045	-0000		31055	-0000	
31036	DATA	00,100,0,100,000,00,000	31046	DATA	00,00,00,00,00,00,00,0	31056	DATA	00,00,00,00,00,00,00,0
31037	-0000		31047	-0000		31057	-0000	
31038	DATA	0000,000,100,100,100,100	31048	DATA	100,00,10,00,70,00,00	31058	DATA	100,00,10,00,70,00,00
31039	-0000		31049	-0000		31059	-0000	
31040	DATA	0000,000,000,000,000,000	31050	DATA	70,00,00,00,00,00,00,0	31060	DATA	70,00,00,00,00,00,00,0
31041	-0000		31051	-0000		31061	-0000	
31042	DATA	00,00,70,70,71,100,70,70	31052	DATA	00,70,70,70,70,00,00,0	31062	DATA	00,00,00,00,00,00,00,0
31043	-0000		31053	-0000		31063	-0000	
31044	DATA	00,00,00,00,00,00,00,00	31054	DATA	00,00,00,00,00,00,00,0	31064	DATA	00,00,00,00,00,00,00,0
31045	-0000		31055	-0000		31065	-0000	
31046	DATA	00,100,0,100,000,00,000	31056	DATA	00,00,00,00,00,00,00,0	31066	DATA	00,00,00,00,00,00,00,0
31047	-0000		31057	-0000		31067	-0000	
31048	DATA	0000,000,100,100,100,100	31058	DATA	100,00,10,00,70,00,00	31068	DATA	100,00,10,00,70,00,00
31049	-0000		31059	-0000		31069	-0000	
31050	DATA	0000,000,000,000,000,000	31060	DATA	70,00,00,00,00,00,00,0	31070	DATA	70,00,00,00,00,00,00,0
31051	-0000		31061	-0000		31071	-0000	
31052	DATA	00,00,70,70,71,100,70,70	31062	DATA	00,70,70,70,70,00,00,0	31072	DATA	00,00,00,00,00,00,00,0
31053	-0000		31063	-0000		31073	-0000	
31054	DATA	00,00,00,00,00,00,00,00	31064	DATA	00,00,00,00,00,00,00,0	31074	DATA	00,00,00,00,00,00,00,0
31055	-0000		31065	-0000		31075	-0000	
31056	DATA	00,100,0,100,000,00,000	31066	DATA	00,00,00,00,00,00,00,0	31076	DATA	00,00,00,00,00,00,00,0
31057	-0000		31067	-0000		31077	-0000	
31058	DATA	0000,000,100,100,100,100	31068	DATA	100,00,10,00,70,00,00	31078	DATA	100,00,10,00,70,00,00
31059	-0000		31069	-0000		31079	-0000	
31060	DATA	0000,000,000,000,000,000	31070	DATA	70,00,00,00,00,00,00,0	31080	DATA	70,00,00,00,00,00,00,0
31061	-0000		31071	-0000		31081	-0000	
31062	DATA	00,00,70,70,71,100,70,70	31072	DATA	00,70,70,70,70,00,00,0	31082	DATA	00,00,00,00,00,00,00,0
31063	-0000		31073	-0000		31083	-0000	
31064	DATA	00,00,00,00,00,00,00,00	31074	DATA	00,00,00,00,00,00,00,0	31084	DATA	00,00,00,00,00,00,00,0
31065	-0000		31075	-0000		31085	-0000	
31066	DATA	00,100,0,100,000,00,000	31076	DATA	00,00,00,00,00,00,00,0	31086	DATA	00,00,00,00,00,00,00,0
31067	-0000		31077	-0000		31087	-0000	
31068	DATA	0000,000,100,100,100,100	31078	DATA	100,00,10,00,70,00,00	31088	DATA	100,00,10,00,70,00,00
31069	-0000		31079	-0000		31089	-0000	
31070	DATA	0000,000,000,000,000,000	31080	DATA	70,00,00,00,00,00,00,0	31090	DATA	70,00,00,00,00,00,00,0
31071	-0000		31081	-0000		31091	-0000	
31072	DATA	00,00,70,70,71,100,70,70	31082	DATA	00,70,70,70,70,00,00,0	31092	DATA	00,00,00,00,00,00,00,0
31073	-0000		31083	-0000		31093	-0000	
31074	DATA	00,00,00,00,00,00,00,00	31084	DATA	00,00,00,00,00,00,00,0	31094	DATA	00,00,00,00,00,00,00,0
31075	-0000		31085	-0000		31095	-0000	
31076	DATA	00,100,0,100,000,00,000	31086	DATA	00,00,00,00,00,00,00,0	31096	DATA	00,00,00,00,00,00,00,0
31077	-0000		31087	-0000		31097	-0000	
31078	DATA	0000,000,100,100,100,100	31088	DATA	100,00,10,00,70,00,00	31098	DATA	100,00,10,00,70,00,00
31079	-0000		31089	-0000		31099	-0000	
31080	DATA	0000,000,000,000,000,000	31090	DATA	70,00,00,00,00,00,00,0	31100	DATA	70,00,00,00,00,00,00,0
31081	-0000		31091	-0000		31101	-0000	
31082	DATA	00,00,70,70,71,100,70,70	31092	DATA	00,70,70,70,70,00,00,0	31102	DATA	00,00,00,00,00,00,00,0
31083	-0000		31093	-0000		31103	-0000	
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31085	-0000		31095	-0000		31105	-0000	
31086	DATA	00,100,0,100,000,00,000	31096	DATA	00,00,00,00,00,00,00,0	31106	DATA	00,00,00,00,00,00,00,0
31087	-0000		31097	-0000		31107	-0000	
31088	DATA	0000,000,100,100,100,100	31098	DATA	100,00,10,00,70,00,00	31108	DATA	100,00,10,00,70,00,00
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31093	-0000		31103	-0000		31113	-0000	
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31095	-0000		31105	-0000		31115	-0000	
31096	DATA	00,100,0,100,000,00,000	31106	DATA	00,00,00,00,00,00,00,0	31116	DATA	00,00,00,00,00,00,00,0
31097	-0000		31107	-0000		31117	-0000	
31098	DATA	0000,000,100,100,100,100	31108	DATA	100,00,10,00,70,00,00	31118	DATA	100,00,10,00,70,00,00
31099	-0000		31109	-0000		31119	-0000	
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YOUR COMPANION march 1988
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LISTINGS

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0000      LP=1.00 WHILE LP=0.1 A
0001      MD DE--1      IF TRAPLP=TRAPRCSN,
0002      L1.1 THEN GO015
0003      MD      DE--
0004      MD      LD=1.00 WHILE LD=0
0005      TRAPLP,2 MD DE--
0006      MD      ST=ST+CHRGNOCL
0007      LP,LD=1.0
0008      MD      LD=0.5,LDOP
0009      MD      GO000 "PRINT"
0010      MD      MD
0011      MD      LP=LP-1,LDOP
0012      MD      MD
0013      MD      L1=L1+1,LDOP
0014      MD      MD
0015      MD      RETURN
0016      MD      KEY CLEAR PRINT PAGES OFFWD
0017      D 00
0018      MD      ST
0019      MD      MD "CLEAR PRINT"
0020      MD      DE--1
0021      MD      IF LPMCSN=0.1 THEN GO015
0022      MD      L1=0.00 WHILE L1=0.000001
0023      MD      DE--1
0024      MD      LP=0.00 WHILE LP=0.1 AND
0025      MD      DE--1
0026      MD      IF TRAPLP=TRAPRCSN,L1
0027      MD      1 THEN GO000
0028      MD      LD=1.00 WHILE LD=0
0029      MD      LP,LD AND DE--1
0030      MD      ST--
0031      MD      ST=ST+CHRGNOCL
0032      P,LD=0.0
0033      MD      LD=0.5,LDOP
0034      MD      GO000 "PRINT"
0035      MD      MD
0036      MD      LP=0.5,LDOP
0037      MD      L1=L1+1,LDOP
0038      MD      MD
0039      MD      RETURN
0040      MD      KEY "CHECK STATUS"
0041      MD      OPEN PPA,4,10
0042      MD      PRINT#0 "CHECK STATUS"
0043      MD      CLOSE PPA
0044      MD      ST=CHRGNOCL+CHRGNOCL+CHRG
0045      MD      NO) MD MD OFF
0046      MD      GO000 "PRINT"
0047      MD      RETURN
0048      MD      MD THIS PRINTS A LINE ON P
0049      MD      04
0050      MD      MD "PRINT"
0051      MD      PRINT#0,ST
0052      MD      IF ST=0 THEN PRINT#0
0053      MD      MD "CHECK STATUS"
0054      MD      RETURN
0055      MD      MD
0056      MD      MD "CHECK STATUS"
0057      MD      MD
0058      MD      MD "CHECK STATUS"
0059      MD      IF ST=0 THEN DE=1
0060      MD      RETURN
0061      MD      MD
0062      MD      MD "CHECK STATUS"
0063      MD      MD "PRINT OFF"
0064      MD      CLOSE PPA
0065      MD      RETURN

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PHOTOGRAPH BY LARRY FORD

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000 PRINT "CONTRACT LOG"
010 PRINT "*****"
020 PRINT "*****"
030 PRINT "*****"
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IN 1988 -

MAY ISSUE -

15th FEBRUARY 1988

B

R

E

R

H

OOPS!

Unfortunately an error appeared in the program *Lister 128* in the December issue.

The corrections are as follows:

Add the following to the end of line 420 and 440.

11=1+1

Apologies for the inconvenience caused.

Program Submissions

Due to the illness of our software evaluator some people may be experiencing a delay in getting to copies regarding submissions. We are trying to clear the backlog of programs as quickly as we can but this is taking some time. This backlog also affects *Bag Finders and Lifesavers*.

We apologise for the delay and would ask that you would bear with us while the backlog is cleared.

The publication of *Lifesavers* has also been halted because of the software backlog. We will be bringing you more short programs and tips as soon as we can.

Commodore Where Are You?

At the Four Commodore office we are repeatedly asked for the address and telephone number of Commodore U.K. Many people, after referring to their computer manuals, believe them to be based in Corby.

The Commodore plant at Corby was closed down some time ago. Reproduced here you will find the correct address for Commodore U.K.

We suggest that you write this correct address in the front of your computer's manual for future reference.

Commodore Business Machines (U.K.),
Commodore House,
The Switchback,
Gardens Road,
Maidenhead,
Berkshire SL6 1XA.

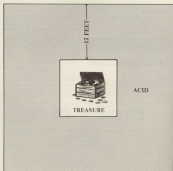
At the Four Commodore office we receive hundreds of letters from readers every month. We do try and answer each individually but sometimes this is impossible due to pressure of work. If you have written to us and not received a personal reply, we apologise for this but we cannot promise to reply to every item of mail we receive. If you feel that your question or letter really needs an answer, then inclusion of an a.s.a.p. will guarantee a reply, although this may still take time to arrive.

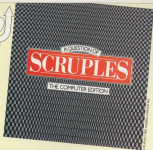
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